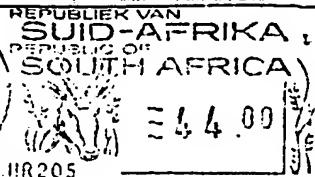
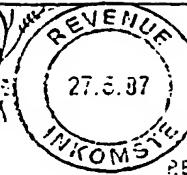


John & Kernick
FORM P1

DEC 20 2004

REPUBLIC OF SOUTH AFRICA
PATENTS ACT, 1978
APPLICATION FOR A PATENT AND
ACKNOWLEDGEMENT OF RECEIPT
Section 30(1) - Regulation 39



The grant of a Patent is hereby requested by the undermentioned
Applicant(s) on the present application filed in duplicate

01	Official application No.	22	Lodging date	J&K Reference
	873821		27th May, 1987	AP 26120/PJW

71	Full Name(s) of applicants:	BAYER AKTIENGESELLSCHAFT . A legal body organised and existing under the laws of the Federal Republic of Germany.
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	Address(es) of applicant(s)	D-5090 Leverkusen, Germany.
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54	Title of Invention	USE OF AMIDES FOR IMPROVING THE CROP PLANT TOLERANCE OF HERBICIDALLY ACTIVE SULPHONYLISO(THIO)UREA DERIVATIVES
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<input checked="" type="checkbox"/>	The applicant claims priority as set out in the accompanying form P2	<input type="checkbox"/> 24 01
<input type="checkbox"/>	This application is for a Patent of Addition to Patent/Application No.	<input type="checkbox"/> 21 01
<input type="checkbox"/>	This application is a fresh application in terms of S 37 and based on application no.	
<input type="checkbox"/>	This application is accompanied by:	
<input type="checkbox"/>	1a A single copy of a provisional specification of pages	
<input checked="" type="checkbox"/>	1b Two copies of a complete specification of 175 pages	
<input type="checkbox"/>	2a Informal drawings of sheets	
<input type="checkbox"/>	2b Formal drawings of sheets	
<input checked="" type="checkbox"/>	3. Publication particulars and abstract (form P8 in duplicate)	
<input type="checkbox"/>	4. A copy of Figure of the drawings for the abstract	
<input checked="" type="checkbox"/>	5. Assignment of invention (from the Inventors) or other evidence of title	
<input checked="" type="checkbox"/>	6. Certified priority documents (1 documents)	
<input checked="" type="checkbox"/>	7. Translation of priority documents (1 documents)	
<input type="checkbox"/>	8. Assignment of priority rights	
<input type="checkbox"/>	9. A copy of the form P2 and the specification of S.A Patent Application	<input type="checkbox"/> 21 01
<input checked="" type="checkbox"/>	10. A declaration and power of attorney on form P3	
<input type="checkbox"/>	11. Request for ante-dating on form P4	
<input type="checkbox"/>	12. Request for classification on form P9	
<input type="checkbox"/>	13a Request for delay of acceptance on form P4	
<input type="checkbox"/>	13b	

74	Address for Service: JOHN & KERNICK, PRETORIA.
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Date 27th May, 1987

For the Applicant

The duplicate will be returned to the applicant for service as proof of
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COMPLETE SPECIFICATION

(Section 30(1) - Regulation 28)

21	01	Official application No.	22	Lodging date	J&K Reference
873821			27th May, 1987		AP 26120/PJW
51	International classification				
A01N					
71	Full Name(s) of Applicant(s)				
BAYER AKTIENGESELLSCHAFT . A legal body organised and existing under the laws of the Federal Republic of Germany.					
72	Full name(s) of Inventor(s)				
Theodor PFISTER, Dieter FEUCHT, Robert R. SCHMIDT					
54	Title of Invention				
USE OF AMIDES FOR IMPROVING THE CROP PLANT TOLERANCE OF HERBICIDALLY ACTIVE SULPHONYLISO(THIO)UREA DERIVATIVES					

The invention relates to the use of known amides as antidotes for improving the crop plant tolerance of certain herbicidally active sulphonyliso(thio)urea derivatives.

5 The invention furthermore relates to new active compound combinations which consist of known amides and known herbicidally active sulphonyliso(thio)urea derivatives and have particularly good selectively herbicidal properties.

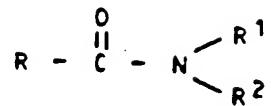
10 In the present connection, "antidotes" ("safeners") are to be understood as substances which are capable of specifically antagonizing the harmful effects of herbicides on crop plants, that is to say of protecting the crop plants, without thereby noticeably influencing the 15 herbicidal action on the weeds to be combated.

It is known that numerous herbicidally active sulphonyliso(thio)urea derivatives cause damage to a greater or lesser degree on crop plants when used for combating weeds in maize and other crops.

20 It is furthermore known that numerous amides are suitable for reducing damage which can be caused to crop plants by herbicidal active compounds, in particular thiocarbamates and acetanilides (compare, for example, DE-OS (German Published Specification) 2,218,097, DE-OS 25 (German Published Specification) 2,828,265, U.S. Patent Specification 4,021,224, U.S. Patent Specification 4,124,376 and U.S. Patent Specification 4,137,070).

30 However, the applicability of these substances as antidotes depends to a large degree on the particular herbicidal active compound.

It has now been found that the known amides of the formula (1)



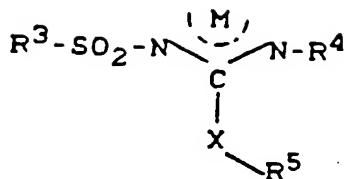
(I)

in which

R represents hydrogen or halogen, or represents in each case optionally substituted alkyl, alkenyl, alkinyl, cycloalkyl, cycloalkenyl, bicycloalkyl, bicycloalkenyl, tricycloalkyl, aryl, heteroaryl, alkoxy, alkenyloxy, alkinyloxy, aryloxy, carbamoyl, alkoxycarbonyl or dithiolanyl and R¹ and R² independently of one another represent hydrogen, or represent formyl, or represent chlorosulphonyl, or represent in each case optionally substituted alkyl, alkenyl, alkadienyl, alkinyl, cycloalkyl, cycloalkenyl, alkoxy, alkylthio, alkylcarbonyl, alkoxycarbonyl, phenyl, phenoxy, phenylsulphonyl or heterocyclyl, or represent amino, or represent alkylideneimino, or represent optionally substituted alkylcarbonylamino or di-(alkylcarbonyl)amino, or R¹ and R², together with the nitrogen atom to which they are bonded, represent in each case optionally substituted alkylideneimino, pyrrolidinyl, piperidinyl, piperidonyl, perhydroazepinyl, perhydroazocinyl, dihydropyrazolyl, dihydro- or tetrahydropyridinyl, azabicyclononyl, morpholinyl, perhydro-1,3-oxazinyl, 1,3-oxazolidinyl, 1,4-piperazinyl, perhydro-1,4-diazepinyl, dihydro-, tetrahydro- or perhydroquinolyl or -isoquinolyl, indolyl or dihydro- or perhydroindolyl, tandemly suitable as antidotes for improving the plant tolerance of herbicidally active sulphonylisoxa derivatives of the general formula (II)

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(II)



in which

R³ represents an optionally substituted radical from the series comprising alkyl, aralkyl, aryl and heteroaryl,

5 R⁴ represents a six-membered aromatic heterocyclic radical which is optionally substituted and/or optionally fused and which contains at least one nitrogen atom,

10 R⁵ represents an optionally substituted aliphatic, araliphatic, aromatic or heteroaromatic radical,

X represents oxygen or sulphur and

M represents hydrogen or one equivalent of a metal, and of adducts of compounds of the formula (II) and strong acids.

It has furthermore been found that the new active compound combinations consisting of

- an amide of the formula (I) and

- at least one herbicidal sulphonyliso(thio)urea derivative of the formula (II)

are outstandingly suitable for selectively combating weeds in crops of useful plants.

Surprisingly, the crop plant tolerance of herbicidal sulphonyliso(thio)urea derivatives of the formula

25 (II) is decidedly improved by also using amides of the formula (I). It is furthermore unexpected that the active compound combinations according to the invention of an amide of the formula (I) and a herbicidal sulphonyliso-thio)urea derivative of the formula (II) have better selective properties than the active compounds in question by themselves.

Formula (I) provides a general definition of the

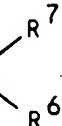
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amides which can be used according to the invention. Preferred amides of the formula (I) are those in which

R represents hydrogen, fluorine, chlorine or

5

bromine; or represents the radical - CO - N



wherein

10

R⁶ and R⁷ are identical or different and each represent hydrogen, or represent in each case straight-chain or branched alkyl, alkenyl, alkinyl or cyanoalkyl with in each case up to 8 carbon atoms; or furthermore

15

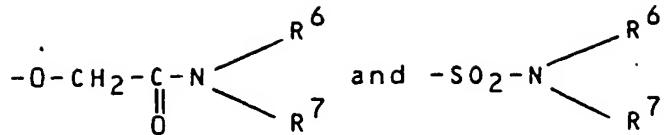
R represents straight-chain or branched alkyl which has 1 to 20 carbon atoms and is optionally monosubstituted or polysubstituted by identical or different substituents, possible substituents being: hydroxyl, halogen, in particular fluorine, chlorine, bromine or iodine, cyano, cyanato and thiocyanato; in each case straight-chain or branched alkoxy, alkylthio, alkylcarbonyl, alkylcarbonyloxy, alkoxy carbonyl, halogenoalcoxy, halogeno-hydroxy-alcoxy, halogenoalkylcarbonyl, halogenoalkoxycarbonyl, halogenoalkylcarbonyloxy and halogenoalkenylcarbonyloxy with in each case up to 6 carbon atoms and if appropriate up to 9

20

identical or different halogen atoms, in particular fluorine, chlorine or bromine; and also phenyl, phenoxy, phenylthio and thienyl, in each case optionally monosubstituted or polysubstituted by identical or different substituents from the group comprising halogen, lower alkyl and/or lower alkoxy; and furthermore cycloalkyl with 3 to 7

30

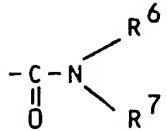
carbon atoms and the radicals $\begin{array}{c} R^6 \\ \diagdown \\ -N \\ \diagup \\ R^7 \end{array}$, $\begin{array}{c} R^6 \\ \diagdown \\ -C=O-N \\ \diagup \\ R^7 \end{array}$



wherein

R^6 and R^7 in each case have the abovementioned meanings; or furthermore

5 R represents straight-chain or branched alkenyl which has 2 to 8 carbon atoms and is optionally monosubstituted or polysubstituted by identical or different substituents, possible substituents being: hydroxyl, halogen, in particular fluorine, chlorine or bromine, straight-chain or branched
10 alkoxy carbonyl with up to 6 carbon atoms and phenyl and phenoxy, in each case optionally mono-
 substituted or polysubstituted by identical or different substituents from the group comprising
15 halogen, in particular fluorine, chlorine or bromine, lower alkyl and lower alkoxy; or furthermore
 R represents straight-chain or branched alkinyl with 2 to 8 carbon atoms; or furthermore
20 R represents cycloalkyl, cycloalkenyl, bicyclo-
 alkyl, bicycloalkenyl or tricycloalkyl with in each case up to 12 carbon atoms and in each case optionally monosubstituted or polysubstituted by identical or different substituents, possible sub-
 stituents being: straight-chain or branched alkyl
25 with 1 to 4 carbon atoms, phenyl and the radical



wherein

R^6 and R^7 have the abovementioned meaning; or furthermore

30 R represents aryl which has 6 to 10 carbon atoms and is optionally monosubstituted or polysubstituted by identical or different substituents,

possible substituents being: halogen, in particular fluorine, chlorine, bromine or iodine, nitro, carboxyl - also in the form of the carboxylate anion - in each case straight-chain or branched alkyl, alkoxy, halogenoalkyl, alkylcarbonyl, halogenoalkylcarbonyl and halogenoalkylcarbonylamino with in each case up to 4 carbon atoms and if appropriate up to 5 identical or different halogen atoms, in particular fluorine, chlorine or bromine,

5

and the radical $-CO-N\begin{array}{c} R^6 \\ \diagdown \\ R^7 \end{array}$

10

wherein

R^6 and R^7 have the abovementioned meaning, or furthermore

15

R represents furyl, thienyl, pyridyl or dithiophenyl, in each case optionally monosubstituted or polysubstituted by identical or different substituents, possible substituents being: halogen, in particular fluorine, chlorine or bromine, straight-chain or branched alkyl with up to 6

20

carbon atoms and the radical $-CO-N\begin{array}{c} R^6 \\ \diagdown \\ R^7 \end{array}$

wherein

R^6 and R^7 have the abovementioned meaning, or finally

25

R represents in each case straight-chain or branched alkoxy, alkenyloxy, alkinyloxy, alkoxy-carbonyl or phenoxy, in each case optionally monosubstituted or polysubstituted by identical or different substituents from the group comprising phenyl and halogen, in particular fluorine, chlorine or bromine, and

30

R^1 and R^2 , which are identical or different, independently of one another, represent hydrogen,

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formyl or chlorosulphonyl, or represent phenyl,
phenoxy or phenylsulphonyl, in each case option-
ally monosubstituted or polysubstituted by iden-
tical or different substituents from the group
comprising halogen, in particular fluorine,
chlorine or bromine, and lower alkyl, or further-
more represent straight-chain or branched alkyl
which has 1 to 12 carbon atoms and is optionally
monosubstituted or polysubstituted by identical
or different substituents, possible substituents
being: hydroxyl, mercapto, cyano and halogen, in
particular fluorine, chlorine, bromine or iodine;
and in each case straight-chain or branched
alkoxy, alkoximino, alkylcarbonyl, alkylcarbonyl-
oxy, alkoxy carbonyl, alkoxy carbonyloxy, alkylthio-
carbonyloxy, halogenoalkylcarbonyloxy and alkyl-
sulphonyloxy with in each case up to 6 carbon
atoms and, where appropriate, up to 5 identical
or different halogen atoms, in particular fluorine,
chlorine or bromine; and furthermore alkylamino-
carbonyloxy, dialkylaminocarbonyloxy, alkenyl-
aminocarbonyloxy and dialkenylaminocarbonyloxy
with in each case up to 6 carbon atoms in the
individual straight-chain or branched alkyl or
alkenyl parts; and furthermore cycloalkylamino-
carbonyloxy with 3 to 7 carbon atoms in the cyclo-
alkyl part, and phenylaminocarbonyloxy which is
optionally monosubstituted or polysubstituted by
identical or different substituents from the group
comprising halogen, in particular fluorine, chlor-
ine or bromine, and lower alkyl, and furthermore
cycloalkyl which has 3 to 7 carbon atoms and is
optionally monosubstituted or polysubstituted by
identical or different substituents from the group
comprising halogen, in particular fluorine,
chlorine or bromine, and lower alkyl, phenyl which

is optionally monosubstituted or polysubstituted by identical or different substituents from the group comprising nitro, halogen, in particular fluorine, chlorine or bromine, lower alkyl and dioxyalkylene, furyl, tetrahydrofuryl, pyrazolyl, oxazolyl, isoxazolyl, thiazolyl, thiadiazolyl, oxadiazolyl, pyridyl and pyrimidinyl, in each case optionally monosubstituted or polysubstituted by identical or different substituents from the group comprising halogen, in particular fluorine, chlorine or bromine, and lower alkyl, and amino which is optionally monosubstituted or polysubstituted by identical or different substituents from the group comprising in each case lower alkyl, halogenoalkylcarbonyl, halogenophenoxyalkylcarbonyl and halogenoalkylcarbonylaminoalkyl; or furthermore

20 R¹ and R² represent straight-chain or branched alkenyl, alkadienyl or alkinyl with in each case 3 to 8 carbon atoms and in each case optionally monosubstituted or polysubstituted by identical or different substituents, possible substituents being: halogen, in particular fluorine, chlorine or bromine, cyano and in each case straight-chain or branched alkoxy, alkylcarbonyl and alkoxy-carbonyl with in each case up to 6 carbon atoms; or furthermore

25 R¹ and R² represent cycloalkyl or cycloalkenyl with in each case 3 to 8 carbon atoms and in each case optionally monosubstituted or polysubstituted by identical or different substituents from the group comprising halogen, in particular fluorine, chlorine or bromine, and lower alkyl; or furthermore represent piperidyl, pyridyl, thienyl, oxazolyl, isoxazolyl, thiazolyl, oxadiazolyl, thiadiazolyl, fluorenyl, phthalimidoyl or dioxanyl, in

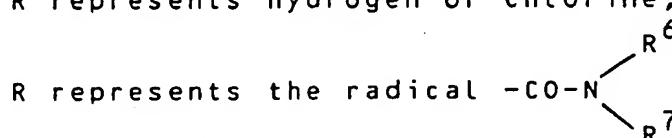
each case optionally monosubstituted or polysubstituted by identical or different substituents and/or benzo-fused, possible substituents being:
5 halogen, in particular fluorine, chlorine or bromine, cyano and in each case straight-chain or branched alkyl and alkanediyl with in each case 1 to 4 carbon atoms; or furthermore
R¹ and R² represent in each case straight-chain or branched alkoxy, alkylthio, alkylcarbonyl,
10 alkoxycarbonyl, halogenoalkylcarbonyl or halogeno-alkoxycarbonyl with in each case up to 6 carbon atoms and, where appropriate, up to 5 identical or different halogen atoms, in particular fluorine, chlorine or bromine; or furthermore
15 R¹ and R² represent amino or alkylideneimino which is optionally monosubstituted or polysubstituted by identical or different substituents, possible substituents being: in each case straight-chain or branched alkyl, alkenyl, alkinyl, alkylcarbonyl and halogenoalkylcarbonyl with in each case up to 8 carbon atoms and, where appropriate, up to 5 identical or different halogen atoms, in particular fluorine, chlorine or bromine; or
20 R¹ and R², together with the nitrogen atom to which they are bonded, represent alkylideneamino, pyrrolidinyl, piperidinyl, piperidonyl, perhydroazepinyl, perhydroazocinyl, dihydropyrazolyl, dihydro- or tetrahydropyridyl, azabicyclononyl, morpholinyl, perhydro-1,3-oxazinyl, 1,3-oxazolidinyl, 1,4-piperazinyl, perhydro-1,4-diazepinyl, dihydro-, tetrahydro- or perhydroquinolyl or -isoquinolyl, indolyl or dihydro- or perhydroindolyl, in each case optionally monosubstituted or polysubstituted by identical or different substituents,
25 possible substituents being: hydroxyl, halogen
30 (in particular fluorine, chlorine or bromine),
35

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cyano and formyl; and in each case straight-chain
or branched, where appropriate divalent alkyl,
alkanediyl, alkoxy, dioxyalkylene, alkylcarbonyl,
alkoxycarbonyl and halogenoalkylcarbonyl with in
5 each case up to 8 carbon atoms, in each case
straight-chain or branched alkylamino and dialkyl-
amino with in each case up to 4 carbon atoms in
the individual alkyl parts, phenyl, naphthyl,
10 pyridyl and piperidinyl, in each case optionally
monosubstituted or polysubstituted by identical
or different substituents from the group compris-
ing halogen, in particular fluorine, chlorine or
bromine, nitro and in each case lower alkyl,
15 halogenoalkyl, alkoxy, alkylcarbonyl or alkoxy-
carbonyl, and straight-chain or branched cyclo-
propylalkyl, cyclohexylalkyl, piperidinylalkyl,
phenylalkyl and phenylalkenyl with up to 4 carbon
atoms in the particular alkyl or alkenyl parts and
in each case optionally monosubstituted or poly-
20 substituted by identical or different substituents
from the group comprising halogen, in particular
fluorine, chlorine or bromine, lower alkyl and
halogenoalkylcarbonyl.

Particularly preferred amides of the formula (I)
25 are those
in which

R represents hydrogen or chlorine; or furthermore



wherein

30 R⁶ and R⁷ are identical or different and independ-
ently of one another each represent hydrogen,
methyl, ethyl, allyl, propargyl, but-1-in-3-yl,
3-methylbut-1-in-3-yl or 2-cyanoprop-2-yl; or
furthermore

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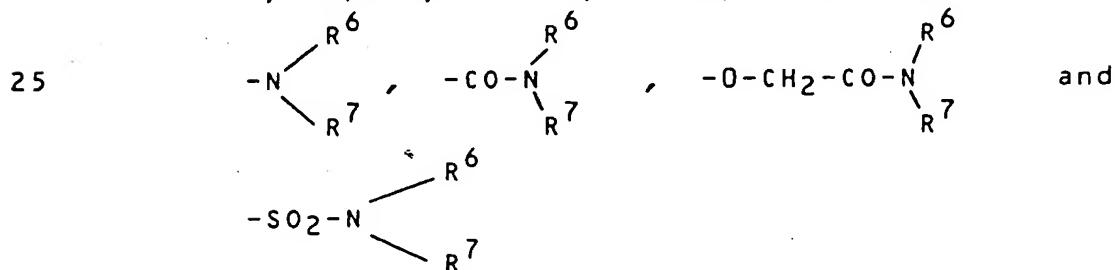
R represents straight-chain or branched alkyl with up to 15 carbon atoms; or furthermore

5 R represents straight-chain or branched halogeno-alkyl with 1 to 6 carbon atoms and 1 to 9 identical or different halogen atoms, in particular fluorine, chlorine, bromine and iodine; or furthermore

R represents straight-chain or branched alkyl which has 1 to 6 carbon atoms and is mono-, di- or

10 trisubstituted by identical or different substituents, possible substituents being: hydroxyl, fluorine, chlorine, bromine, cyano, cyanato, thiocyanato, methoxy, ethoxy, methylthio, ethylthio, acetyl, propionyl, acetoxy, propionyloxy, methoxy-carbonyl, ethoxycarbonyl, 1,1,3,3-tetrachloro-2-hydroxyprop-2-yloxy, 1,1,1,3,3-pentachloro-2-hydroxyprop-2-yloxy, chloroacetyl, dichloroacetyl, chloroacetoxy, dichloroacetoxy, pentachlorobutadien-1-ylcarbonyloxy and phenyl, phenoxy, phenylthio and thienyl, in each case optionally mono-, di- or trisubstituted by identical or different substituents from the group comprising chlorine, methyl and methoxy; and furthermore cyclopropyl, cyclopentyl and cyclohexyl; and the radicals

15



30 R⁶ and R⁷ are identical or different and in each case independently of one another represent hydrogen, methyl, ethyl, allyl, propargyl, but-1-in-3-yl, 3-methyl-but-1-in-3-yl or 2-cyanoprop-2-yl; or furthermore

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R represents straight-chain or branched alkenyl which has 2 to 5 carbon atoms and is mono-, di- or trisubstituted by identical or different substituents, possible substituents being: hydroxyl, fluorine, chlorine, bromine, methoxycarbonyl, ethoxycarbonyl and phenyl and phenoxy, in each case optionally mono-, di- or trisubstituted by identical or different substituents from the group comprising fluorine, chlorine, methyl and methoxy; or furthermore

10 R represents straight-chain or branched alkinyl with 2 to 5 carbon atoms; or furthermore

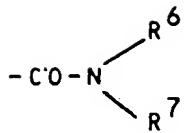
R represents cyclopropyl, cyclopentyl, cyclohexyl, cycloheptyl, cyclohexenyl, bicycloheptenyl, bi-cyclooctyl, bicyclononyl or tricyclodecyl, in each case optionally mono-, di-, tri-, tetra- or penta-substituted by identical or different substituents, possible substituents being: methyl, ethyl, phenyl

15 and the radical -CO-N₂⁶
R⁶
R⁷

20 wherein

R⁶ and R⁷ are identical or different and in each case independently of one another represent hydrogen, methyl, ethyl, allyl, propargyl, but-1-in-3-yl, 3-methylbut-1-in-3-yl or 2-cyanoprop-2-yl, or furthermore

25 R represents phenyl which is optionally mono-, di- or trisubstituted by identical or different substituents, possible substituents being: fluorine, chlorine, bromine, iodine, nitro, methyl, ethyl, methoxy, ethoxy, carboxyl - also in the form of the carboxylate anion -, trifluoromethyl, chloroacetamido, dichloroacetamido and the radical



wherein

R⁶ and R⁷ are identical or different and in each case independently of one another represent hydrogen, methyl, ethyl, allyl, propargyl, but-1-in-3-yl, 3-methylbut-1-in-3-yl or 2-cyanoprop-2-yl; or furthermore

5 R represents furyl, thienyl, pyridyl or dithiophenyl, in each case optionally mono-, di- or tri-substituted by identical or different substituents, possible substituents being: chlorine, methyl,

10 ethyl and the radical $-\text{CO}-\text{N} \begin{array}{l} \diagup \\ \text{R}^6 \\ \diagdown \\ \text{R}^7 \end{array}$

wherein

15 R⁶ and R⁷ are identical or different and in each case independently of one another represent hydrogen, methyl, ethyl, allyl, propargyl, but-1-in-3-yl, 3-methylbut-1-in-3-yl or 2-cyanoprop-2-yl; or finally

20 R represents methoxy, ethoxy, allyloxy, propargyloxy, butinyloxy, methoxycarbonyl, ethoxycarbonyl or phenyl, in each case optionally mono-, di- or trisubstituted by identical or different substituents from the group comprising fluorine, chlorine, bromine and phenyl, and

25 R¹ and R², which are identical or different, independently of one another represent hydrogen, formyl or chlorosulphonyl, or represent phenyl, phenoxy or phenylsulphonyl, in each case optionally mono-, di- or trisubstituted by identical or different substituents from the group comprising fluorine, chlorine, bromine or methyl; or furthermore represent straight-chain or branched alkyl

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which has 1 to 8 carbon atoms and is optionally mono-, di- or trisubstituted by identical or different substituents, possible substituents being: hydroxyl, mercapto, cyano, fluorine,
5 chlorine, bromine, methoxy, ethoxy, propoxy, butoxy, methoximino, ethoximino, acetyl, propionyl, acetoxyl, propionyloxy, methoxycarbonyl, ethoxycarbonyl, methoxycarbonyloxy, ethoxycarbonyloxy, methylthiocarbonyloxy, ethylthiocarbonyloxy, chloroacetoxy, dichloroacetoxy, methylsulphonyloxy, ethylsulphonyloxy, methylaminocarbonyloxy, di-
10 methylaminocarbonyloxy, ethylaminocarbonyloxy, diethylaminocarbonyloxy, propylaminocarbonyloxy, butylaminocarbonyloxy, allylaminocarbonyloxy, di-allylaminocarbonyloxy and cyclohexylaminocarbonyl-
15 oxy, and phenylaminocarbonyloxy which is optionally mono-, di- or trisubstituted by identical or different substituents from the group comprising chlorine and methyl; and furthermore cyclopropyl, cyclopentyl, cyclohexyl and cycloheptyl, in each case optionally mono-, di-, tri-, tetra- or penta-
20 substituted by identical or different substituents from the group comprising chlorine and methyl; and phenyl which is optionally mono-, di- or tri-
25 substituted by identical or different substituents from the group comprising nitro, fluorine, chlorine, bromine, methyl and dioxymethylene, and furyl, tetrahydrofuryl, pyrazolyl, oxazolyl, isoxazolyl, thiazolyl, thiadiazolyl, oxadiazolyl, pyridyl and pyrimidinyl, in each case optionally mono- or disubstituted by identical or different substituents from the group comprising methyl, ethyl, propyl and chlorine; and amino which is
30 optionally monosubstituted or disubstituted by identical or different substituents from the group comprising methyl, ethyl, chloroacetyl, dichloro-
35

5 acetyl, chlorophenoxyacetyl, dichloroacetamido-methyl and dichloroacetamidoethyl; or furthermore R¹ and R² represent straight-chain or branched alkenyl, alkadienyl or alkinyl with in each case 3 to 5 carbon atoms and in each case optionally monosubstituted or disubstituted by identical or different substituents from the group comprising chlorine, methoxy, ethoxy, acetyl, methoxycarbonyl, ethoxycarbonyl or cyano; or furthermore

10 R¹ and R² represent cyclopropyl, cyclopentyl, cyclohexyl, cyclohexenyl or cyclooctyl, in each case optionally mono-, di-, tri-, tetra- or penta-substituted by identical or different substituents from the group comprising chlorine and methyl; or

15 furthermore R¹ and R² represent piperidyl, pyridyl, thienyl, oxazolyl, isoxazolyl, thiadiazolyl, fluorenyl, phthalimidoyl or dioxanyl, in each case optionally mono-, di- or trisubstituted by identical or different substituents from the group comprising fluorine, chlorine, bromine, cyano, methyl, ethyl, propyl, propanediyl and butanediyl and/or benzo-fused; or furthermore

20 R¹ and R² represent methoxy, ethoxy, propoxy, butoxy, methylthio, ethylthio, propylthio, butylthio, acetyl, chloroacetyl, dichloroacetyl, methoxycarbonyl, ethoxycarbonyl, chloroethoxycarbonyl or bromoethoxycarbonyl, and furthermore

25 R¹ and R² represent amino or propylideneimino, optionally monosubstituted or disubstituted by identical or different substituents from the group comprising methyl, ethyl, allyl, propargyl, acetyl, chloroacetyl and dichloroacetyl, or

30 R¹ and R², together with the nitrogen atom to which they are bonded, represent methylideneimino, ethylideneimino, propylideneimino, pyrrolidinyl,

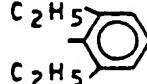
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5 piperidinyl, piperidonyl, perhydroazepinyl, perhydroazocinyl, dihydropyrazolyl, dihydro- or tetrahydropyridyl, azabicyclononyl, morpholinyl, perhydro-1,3-oxazinyl, 1,3-oxazolidinyl, 1,4-piperazinyl, perhydro-1,4-diazepinyl, dihydro-, tetrahydro- or perhydroquinolyl or -isoquinolyl, indolyl or dihydro- or perhydroindolyl, in each case optionally mono-, di-, tri-, tetra- or penta-substituted by identical or different substituents, possible substituents being: hydroxyl, fluorine, chlorine, bromine, cyano, formyl, methyl, ethyl, propyl, butyl, ethanediyl, propanediyl, methoxy, ethoxy, propoxy, butoxy, dioxyethylene, dioxy-propylene, dioxybutylene, acetyl, propionyl, chloroacetyl, dichloroacetyl, α -chloropropionyl, methoxycarbonyl, ethoxycarbonyl, methylamino, ethylamino, dimethylamino, diethylamino and phenyl, naphthyl or piperidinyl, in each case optionally mono-, di- or trisubstituted by identical or different substituents from the group comprising fluorine, chlorine, bromine, nitro, methyl, ethyl, methoxy, ethoxy, trifluoromethyl, acetyl, propionyl, methoxycarbonyl and ethoxycarbonyl, and cyclopropylmethyl, cyclohexylmethyl, piperidinylethyl, piperidinylpropyl, benzyl, phenylethyl and phenylpropenyl, in each case optionally mono-, di- or trisubstituted by identical or different substituents from the group comprising chlorine, methyl, chloroacetyl and dichloroacetyl.

10 20 25 30

The terms "lower alkyl", "lower alkoxy" and the like in the context of this invention designate corresponding radicals with 1-4 C atoms. The following compounds of the general formula (I) may be mentioned specifically:

Table 1

Example No.	R	R^1	R^2
I-1	H	H	
I-2	Cl	$-\text{CH}_2-\text{CH}=\text{CH}_2$	$-\text{CH}_2-\underset{\text{CH}_3}{\text{C}}=\text{CH}_2$
I-3	CH_3	H	$-\underset{\text{CH}_3}{\text{C}}\equiv\text{CH}$
I-4	CH_3	H	$-\underset{\text{CF}_3}{\text{C}}-\text{OH}$
I-5	CH_3	$-\text{CH}_2-\text{CH}=\text{CH}_2$	$-\text{CH}_2-\text{CH}=\text{CH}_2$
I-6	CH_3		$-\text{SO}_2-\underset{\text{CH}_3}{\text{C}_6\text{H}_4}$
I-7	$n-\text{C}_3\text{H}_7$	H	$-\underset{\text{CH}_3}{\text{C}}\equiv\text{CH}$
I-8	$n-\text{C}_3\text{H}_7$	CH_3	$-\underset{\text{CH}_3}{\text{CH}}-\text{C}\equiv\text{CH}$
I-9	$n-\text{C}_3\text{H}_7$	$-\text{CH}_2-\text{CH}=\text{CH}_2$	$-\text{CH}_2-\text{CH}=\text{CH}_2$
I-10	$i-\text{C}_3\text{H}_7$	CH_3	$-\underset{\text{CH}_3}{\text{CH}}-\text{C}\equiv\text{CH}$
I-11	$n-\text{C}_4\text{H}_9$	H	$-\underset{\text{CH}_3}{\text{CH}}-\text{C}\equiv\text{CH}$
I-12	$(\text{CH}_3)_3\text{C}-\text{CH}_2-$	H	$-\underset{\text{CH}_3}{\text{C}}\text{N}$
I-13	$(\text{CH}_3)_3\text{C}-\text{CH}_2-$	CH_3	$-\underset{\text{CH}_3}{\text{C}}\equiv\text{CH}$

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Table 1 (continuation)

Example No.	R	R ¹	R ²
I-14	CH ₃ -(CH ₂) ₂ - ^{CH₃} CH-	H	- ^{CH₃} C≡CH CH ₃
I-15	CH ₃ -(CH ₂) ₂ - ^{CH₃} CH-	CH ₃	-CH ₃ C≡CH
I-16	CH ₃ -(CH ₂) ₂ - ^{CH₃} CH-	-CH ₂ -CH=CH ₂	-CH ₂ -CH=CH ₂
I-17	n-C ₆ H ₁₃	H	- ^{CH₃} C≡CH CH ₃
I-18	n-C ₆ H ₁₃	CH ₃	-CH ₃ C≡CH
I-19	n-C ₆ H ₁₃	-CH ₂ -CH=CH ₂	-CH ₂ -CH=CH ₂
I-20	CH ₃ -(CH ₂) ₂ - ^{CH₃} CH-	-CH ₂ -CH=CH ₂	-CH ₂ -CH=CH ₂
I-21	(CH ₃) ₃ GCH ₂ - ^{CH₃} CH-CH ₂ -	H	- ^{CH₃} C≡CH CH ₃
I-22	n-C ₉ H ₁₉	H	- ^{CH₃} C≡CH CH ₃
I-23	n-C ₉ H ₁₉	-CH ₂ -CH=CH ₂	-CH ₂ -CH=CH ₂
I-24	n-C ₁₁ H ₂₃	H	- ^{CH₃} C≡CH CH ₃
I-25	n-C ₁₁ H ₂₃	-CH ₂ -CH=CH ₂	-CH ₂ -CH=CH ₂
I-26	n-C ₁₃ H ₂₇	-CH ₂ -CH=CH ₂	-CH ₂ -CH=CH ₂
I-27	Cl-CH ₂ -	H	-CH ₂ -CH(CH ₃) ₂
I-28	Cl-CH ₂ -	H	-C(CH ₃) ₃

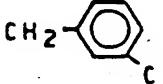
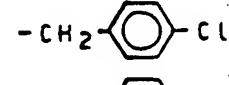
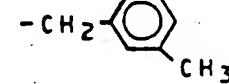
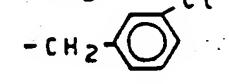
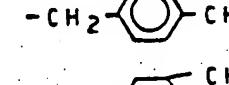
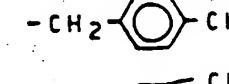
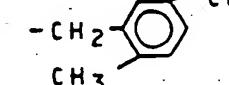
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Table 1 (Continuation)

Example No.	R	R ¹	R ²
I-29 Cl-CH ₂ -	H		$\begin{array}{c} \text{CH}_3 \\ \\ -\text{C}-\text{C}_2\text{H}_5 \\ \\ \text{CH}_3 \end{array}$
I-30 Cl-CH ₂ -	H		$\begin{array}{c} \text{CH}_3 \\ \\ -\text{CH}-\text{CH}_2-\text{CH}(\text{CH}_3)_2 \end{array}$
I-31 Cl-CH ₂ -	H		$\begin{array}{c} -\text{CH}_2-\text{C}=\text{CH}_2 \\ \\ \text{CH}_3 \end{array}$
I-32 Cl-CH ₂ -	H		$\begin{array}{c} \text{CH}_3 \\ \\ -\text{C}-\text{C}\equiv\text{CH} \\ \\ \text{CH}_3 \end{array}$
I-33 Cl-CH ₂ -	H		$\begin{array}{c} \text{CH}_3 \\ \\ -\text{C}-\text{C}_2\text{H}_5 \\ \\ \text{CN} \end{array}$
I-34 Cl-CH ₂ -	H		$\begin{array}{c} \text{C}_2\text{H}_5 \\ \\ -\text{C}-\text{C}_2\text{H}_5 \\ \\ \text{CN} \end{array}$
I-35 Cl-CH ₂ -	H		$-\text{CH}_2\text{CH}_2\text{-Br}$
I-36 Cl-CH ₂ -	H		$-\text{CH}_2\text{CH}_2\text{-OCH}_3$
I-37 Cl-CH ₂ -	H		$-\text{CH}_2-\text{CH}(\text{OCH}_3)_2$
I-38 Cl-CH ₂ -	H		$-\text{CH}_2-\text{C}_2\text{H}_5$
I-39 Cl-CH ₂ -	H		$-\text{CH}_2-\text{NH}-\text{CO}-\text{CH}_2\text{O}-\text{C}_6\text{H}_4-\text{Cl}$
I-40 Cl-CH ₂ -	H		$-\text{CH}_2-\text{NH}-\text{CO}-\text{CH}_2\text{Cl}$
I-41 Cl-CH ₂ -	H		$\begin{array}{c} \text{CH}_3 \\ \\ -\text{C}_6\text{H}_4-\text{CH}_3 \end{array}$
I-42 Cl-CH ₂ -	H		$\begin{array}{c} \text{C}_2\text{H}_5 \\ \\ -\text{C}_4\text{H}_9 \end{array}$

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Table 1 (Continuation)

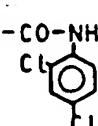
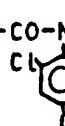
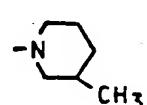
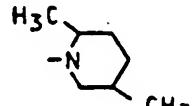
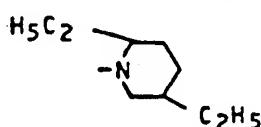
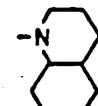
Example No.	R	R ¹	R ²
I-43	Cl-CH ₂ -	CH ₃	-CH(CH ₃) ₂
I-44	Cl-CH ₂ -	CH ₃	-((CH ₂) ₃ -CH ₃
I-45	Cl-CH ₂ -	CH ₃	-CH-CH ₂ H ₅ CH ₃
I-46	Cl-CH ₂ -	CH ₃	-CH-CH(CH ₃) ₂ CH ₃
I-47	Cl-CH ₂ -	CH ₃	-CH ₂ -C≡CH
I-48	Cl-CH ₂ -	CH ₃	-CH ₃ -CH-C≡CH
I-49	Cl-CH ₂ -	CH ₃	-CH ₂ CH ₂ -CN
I-50	Cl-CH ₂ -	CH ₃	-CH ₂ -  Cl
I-51	Cl-CH ₂ -	CH ₃	-CH ₂ -  Cl
I-52	Cl-CH ₂ -	CH ₃	-CH ₂ -  CH ₃
I-53	Cl-CH ₂	C ₂ H ₅	-CH-CH ₂ H ₅ CH ₃
I-54	Cl-CH ₂ -	C ₂ H ₅	-CH ₂ -  Cl
I-55	Cl-CH ₂ -	C ₂ H ₅	-CH ₂ -  CH ₃
I-56	Cl-CH ₂ -	C ₂ H ₅	-CH ₂ -  CH ₃
I-57	Cl-CH ₂ -	C ₂ H ₅	-CH ₂ -  CH ₃
I-58	Cl-CH ₂ -	C ₂ H ₅	
I-59	Cl-CH ₂ -	C ₂ H ₅	 CH ₃

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Table 1 (Continuation)

Example No.	R	R ¹	R ²
I-60	Cl-CH ₂ -	-CH ₂ CH ₂ CH ₃	-CH ₂ -CH(CH ₃) ₂
I-61	Cl-CH ₂ -	-CH ₂ CH ₂ CH ₃	-C(CH ₃) ₃
I-62	Cl-CH ₂ -	-CH ₂ CH ₂ CH ₃	-CH-(CH ₂) ₂ -CH ₃ CH ₃
I-63	Cl-CH ₂ -	-CH ₂ CH ₂ CH ₃	-CH ₂ -  -CH ₃
I-64	Cl-CH ₂ -	-CH ₂ CH ₂ CH ₃	-CH ₂ -  -CH ₃
I-65	Cl-CH ₂ -	-CH ₂ CH ₂ CH ₃	-CH ₂ -  -CL
I-66	Cl-CH ₂ -	-CH ₂ CH ₂ CH ₃	-CH ₂ -  -CL
I-67	Cl-CH ₂ -	-CH ₂ CH ₂ CH ₃	-CH ₂ - 
I-68	Cl-CH ₂ -	-CH ₂ CH ₂ CH ₃	
I-69	Cl-CH ₂ -	-CH ₂ CH ₂ CH ₃	
I-70	Cl-CH ₂ -	-CH(CH ₃) ₂	-CH ₂ CH ₂ CH ₂ CH ₃
I-71	Cl-CH ₂ -	-CH(CH ₃) ₂	-CH ₃ -C ₂ H ₅
I-72	Cl-CH ₂ -	-CH(CH ₃) ₂	-CH ₂ -CH(CH ₃) ₂
I-73	Cl-CH ₂ -	-CH(CH ₃) ₂	-(CH ₂) ₄ -CH ₃
I-74	Cl-CH ₂ -	-CH(CH ₃) ₂	-CH ₂ - 
I-75	Cl-CH ₂ -	-CH ₂ CH ₂ CH ₂ CH ₃	-CH ₂ CH ₂ CH ₂ CH ₃
I-76	Cl-CH ₂ -	-CH ₂ CH ₂ CH ₂ CH ₃	-CH ₂ -CH(CH ₃) ₂
I-77	Cl-CH ₂ -	-CH ₂ CH ₂ CH ₂ CH ₃	-CH=CH ₂
I-78	Cl-CH ₂ -	-CH-C ₂ H ₅ CH ₃	-CH ₂ -CH(CH ₃) ₂
I-79	Cl-CH ₂ -	-(CH ₂) ₅ -CH ₃	-(CH ₂) ₅ -CH ₃
I-80	Cl-CH ₂ -	-CH ₂ -CH=CH ₂	-CH ₂ -CH=CH ₂

Table 1 (Continuation)

Example R No.	R ¹	R ² or	-N- ^{R¹} R ²
I-81	Cl-CH ₂ -	-CH ₂ CH ₂ -OH	-CH ₂ CH ₂ -OH
I-82	Cl-CH ₂ -	-CH ₂ CH ₂ OCH ₃	-CH ₂ CH ₂ OCH ₃
I-83	Cl-CH ₂ -	-CH ₂ CH ₂ OC ₂ H ₅	-CH ₂ CH ₂ OC ₂ H ₅
I-84	Cl-CH ₂ -	-CH ₂ CH ₂ O-CO-NH-CH ₃	-CH ₂ CH ₂ O-CO-NH-CH ₃
I-85	Cl-CH ₂	-CH ₂ CH ₂ O-CO-NH-CH ₂ $\text{CH}=\text{CH}_2$	-CH ₂ CH ₂ O-CO-NH-CH ₂ $\text{CH}=\text{CH}_2$
I-86	Cl-CH ₂ -	-CH ₂ CH ₂ O-CO-NH- 	-CH ₂ CH ₂ O-CO-NH- 
I-87	Cl-CH ₂ -	-CH ₂ CH ₂ O-CO-NH- 	-CH ₂ CH ₂ O-CO-NH- 
I-88	Cl-CH ₂ -		-N- 
I-89	Cl-CH ₂ -		-N- 
I-90	Cl-CH ₂		-N- 
I-91	Cl-CH ₂ -		-N- 
I-92	Cl-CH ₂ -		-N=C- 
I-93	I-CH ₂ -	H	-C ^{CH₃} -C≡CH CH ₃
I-94	I-CH ₂ -	CH ₃	-CH ^{CH₃} -C≡CH
I-95	I-CH ₂ -	-CH ₂ -CH=CH ₂	-CH ₂ -CH=CH ₂

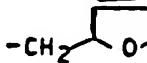
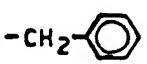
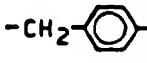
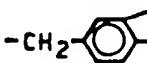
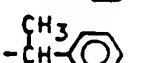
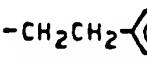
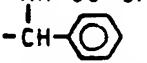
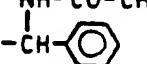
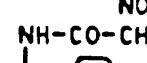
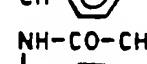
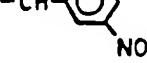
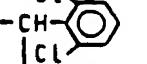
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Table 1 (Continuation)

Example No.	R	R ¹	R ²
I-96	Cl ₂ CH-	H	-CH ₂ -CH(CH ₃) ₂
I-97	Cl ₂ CH-	H	-C(CH ₃) ₃
I-98	Cl ₂ CH-	H	$\begin{array}{c} \text{CH}_3 \\ \\ -\text{C}-\text{C}_2\text{H}_5 \\ \\ \text{CH}_3 \end{array}$
I-99	Cl ₂ CH-	H	-CH ₂ -CH=CH ₂
I-100	Cl ₂ CH-	H	$\begin{array}{c} \text{CH}_3 \\ \\ -\text{CH}_2-\text{C}=\text{CH}_2 \end{array}$
I-101	Cl ₂ CH-	H	$\begin{array}{c} \text{CH}_3 \\ \\ -\text{C}-\text{C}\equiv\text{CH} \\ \\ \text{CH}_3 \end{array}$
I-102	Cl ₂ CH-	H	-CH ₂ CH ₂ Br
I-103	Cl ₂ CH-	H	-CH ₂ CH ₂ OH
I-104	Cl ₂ CH-	H	$\begin{array}{c} \text{CH}_3 \\ \\ -\text{CH}_2-\text{CH}-\text{OH} \end{array}$
I-105	Cl ₂ CH-	H	-CH ₂ CH ₂ CH ₂ -OH
I-106	Cl ₂ CH-	H	-CH ₂ CH ₂ -OC ₂ H ₅
I-107	Cl ₂ CH-	H	-CH ₂ CH ₂ CH ₂ -OCH(CH ₃) ₂
I-108	Cl ₂ CH-	H	$\begin{array}{c} \text{OC}_2\text{H}_5 \\ \\ -\text{CH}_2-\text{CH} \\ \\ \text{OC}_2\text{H}_5 \end{array}$
I-109	Cl ₂ CH-	H	$\begin{array}{c} \text{CH}_3 \\ \\ -\text{C}-\text{CN} \\ \\ \text{C}_2\text{H}_5 \end{array}$
I-110	Cl ₂ CH-	H	$\begin{array}{c} \text{C}_2\text{H}_5 \\ \\ -\text{C}-\text{CN} \\ \\ \text{C}_2\text{H}_5 \end{array}$
I-111	Cl ₂ CH-	H	-CH ₂ CH ₂ -N(CH ₃) ₂
I-112	Cl ₂ CH-	H	-CH ₂ CH ₂ -N(C ₂ H ₅) ₂
I-113	Cl ₂ CH-	H	-CH ₂ CH ₂ -NH-CO-CHCl ₂
I-114	Cl ₂ CH-	H	-CH ₂ CH ₂ CH ₂ -NH-CO-CHCl ₂

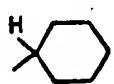
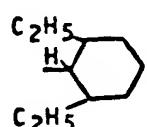
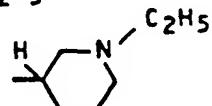
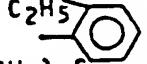
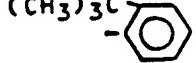
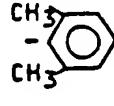
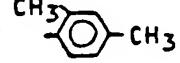
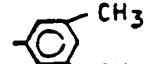
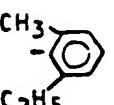
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Table 1 (Continuation)

Example No.	R	R ¹	R ²
I-115	Cl ₂ CH-	H	-CH ₂ CH ₂ -N ^{f2H5} -CO-CHCl ₂
I-116	Cl ₂ CH-	H	-(CH ₂) ₃ -N ^f -CO-CHCl ₂ (CH ₂) ₃ -NH-CO-CHCl ₂
I-117	Cl ₂ CH-	H	-CH ₂ - 
I-118	Cl ₂ CH-	H	-CH ₂ - 
I-119	Cl ₂ CH-	H	-CH ₂ - 
I-120	Cl ₂ CH-	H	-CH ₂ - 
I-121	Cl ₂ CH-	H	-CH ₂ - 
I-122	Cl ₂ CH-	H	-CH ₂ - 
I-123	Cl ₂ CH-	H	-CH ₃ - 
I-124	Cl ₂ CH-	H	-CH ₂ CH ₂ -  NH-CO-CH ₂ Cl
I-125	Cl ₂ CH-	H	-CH ₃ -  NH-CO-CH ₂ Cl
I-126	Cl ₂ CH-	H	-CH ₃ -  NO ₂ NH-CO-CHCl ₂
I-127	Cl ₂ CH-	H	-CH ₃ -  NH-CO-CHCl ₂
I-128	Cl ₂ CH-	H	-CH ₃ -  NO ₂
I-129	Cl ₂ CH-	H	-CH ₃ -  NH-CO-CHCl ₂
I-130	Cl ₂ CH-	H	-CH ₃ - 

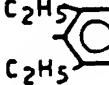
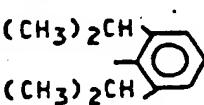
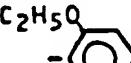
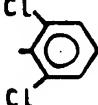
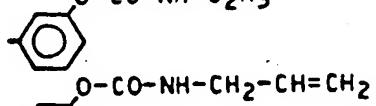
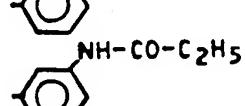
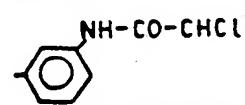
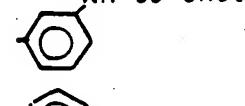
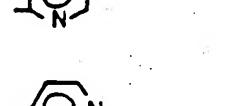
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Table 1 (Continuation)

Example R. No.	R ¹	R ²
I-131 Cl ₂ CH-	H	-CH ₃ -C=CH-COOCH ₂ CH ₃
I-132 Cl ₂ CH-	H	
I-133 Cl ₂ CH-	H	
I-134 Cl ₂ CH-	H	
I-135 Cl ₂ CH-	H	
I-136 Cl ₂ CH-	H	-CO-O-C ₂ H ₅
I-137 Cl ₂ CH-	H	-CO-O-CH ₂ CH ₂ Cl
I-138 Cl ₂ CH-	H	-NH-CO-CHCl ₂
I-139 Cl ₂ CH-	H	-N ^{CH₃} -CO-CHCl ₂
I-140 Cl ₂ CH-	H	-CH ₂ -CH=CH ₂ -N ^{CH₃} -CO-CHCl ₂
I-141 Cl ₂ CH-	H	
I-142 Cl ₂ CH-	H	
I-143 Cl ₂ CH-	H	
I-144 Cl ₂ CH-	H	
I-145 Cl ₂ CH-	H	
I-146 Cl ₂ CH-	H	
I-147 Cl ₂ CH-	H	

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Table 1 (Continuation)

Example No.	R	R ¹	R ²
I-148	Cl ₂ CH-	H	
I-149	Cl ₂ CH-	H	
I-150	Cl ₂ CH-	H	
I-151	Cl ₂ CH-	H	
I-152	Cl ₂ CH-	H	
I-153	Cl ₂ CH-	H	
I-154	Cl ₂ CH-	H	
I-155	Cl ₂ CH-	H	
I-156	Cl ₂ CH-	H	
I-157	Cl ₂ CH-	H	
I-158	Cl ₂ CH-	H	
I-159	Cl ₂ CH-	H	
I-160	Cl ₂ CH-	H	
I-161	Cl ₂ CH-	H	
I-162	Cl ₂ CH-	H	

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Table 1 (Continuation)

<u>Example No.</u>	<u>R</u>	<u>R¹</u>	<u>R²</u>
I-163	Cl ₂ CH-	H	
I-164	Cl ₂ CH-	H	
I-165	Cl ₂ CH-	H	
I-166	Cl ₂ CH-	H	
I-167	Cl ₂ CH-	H	
I-168	Cl ₂ CH-	H	
I-169	Cl ₂ CH-	H	
I-170	Cl ₂ CH-	H	
I-171	Cl ₂ CH-	H	
I-172	Cl ₂ CH-	H	
I-173	Cl ₂ CH-	CH ₃	-CH ₃
I-174	Cl ₂ CH-	CH ₃	-CH ₂ CH ₂ CH ₃
I-175	Cl ₂ CH-	CH ₃	-CH(CH ₃) ₂
I-176	Cl ₂ CH-	CH ₃	-CH ₂ CH ₂ CH ₂ CH ₃
I-177	Cl ₂ CH-	CH ₃	-CH-CH ₂ CH ₃ CH ₃

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Table 1 (Continuation)

Example No.	R	R ¹	R ²
I-178	Cl ₂ CH-	CH ₃	-CH-(CH ₂) ₂ -CH ₃ CH ₃
I-179	Cl ₂ CH-	CH ₃	-CH-CH-CH ₃ CH ₃ CH ₃
I-180	Cl ₂ CH-	CH ₃	-CH=C=CH ₂
I-181	Cl ₂ CH-	CH ₃	-CH ₂ -C≡CH
I-182	Cl ₂ CH-	CH ₃	-CH-C≡CH CH ₃
I-183	Cl ₂ CH-	CH ₃	-CH ₂ CH ₂ -OH
I-184	Cl ₂ CH-	CH ₃	-CH ₂ CH ₂ -CN
I-185	Cl ₂ CH-	CH ₃	-(CH ₂) ₂ -N-(CH ₂) ₂ -N-CO-CHCl ₂ CH ₃ CH ₃
I-186	Cl ₂ CH-	CH ₃	-CH ₂ -
I-187	Cl ₂ CH-	CH ₃	-CH ₂ -
I-188	Cl ₂ CH-	CH ₃	-CH ₂ -
I-189	Cl ₂ CH-	CH ₃	-CH ₂ -
I-190	Cl ₂ CH-	CH ₃	-CH ₂ -
I-191	Cl ₂ CH-	CH ₃	-NH ₂
I-192	Cl ₂ CH-	CH ₃	-N=C(CH ₃) ₂ CO-CHCl ₂
I-193	Cl ₂ CH-	CH ₃	-N-CO-CHCl ₂

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Table 1 (Continuation)

Example No.	R ¹	R ²
I-194	Cl ₂ CH-	CH ₃
I-195	Cl ₂ CH-	CH ₃
I-196	Cl ₂ CH-	CH ₃
I-197	Cl ₂ CH-	CH ₃
I-198	Cl ₂ CH-	CH ₃
I-199	Cl ₂ CH-	CH ₃
I-200	Cl ₂ CH-	C ₂ H ₅
I-201	Cl ₂ CH-	C ₂ H ₅
I-202	Cl ₂ CH-	C ₂ H ₅
I-203	Cl ₂ CH-	C ₂ H ₅
I-204	Cl ₂ CH-	C ₂ H ₅
I-205	Cl ₂ CH-	C ₂ H ₅
I-206	Cl ₂ CH-	C ₂ H ₅
I-207	Cl ₂ CH-	C ₂ H ₅
I-208	Cl ₂ CH-	C ₂ H ₅
I-209	Cl ₂ CH-	C ₂ H ₅
I-210	Cl ₂ CH-	C ₂ H ₅
I-211	Cl ₂ CH-	C ₂ H ₅
I-212	Cl ₂ CH-	C ₂ H ₅
I-213	Cl ₂ CH-	C ₂ H ₅

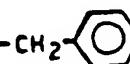
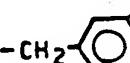
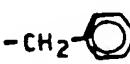
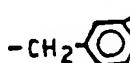
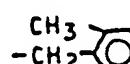
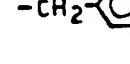
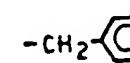
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Table 1 (Continuation)

<u>Example No.</u>	<u>R</u>	<u>R¹</u>	<u>R²</u>
I-214	Cl ₂ CH-	C ₂ H ₅	
I-215	Cl ₂ CH-	C ₂ H ₅	
I-216	Cl ₂ CH-	C ₂ H ₅	
I-217	Cl ₂ CH-	C ₂ H ₅	
I-218	Cl ₂ CH-	C ₂ H ₅	
I-219	Cl ₂ CH-	C ₂ H ₅	
I-220	Cl ₂ CH-	C ₂ H ₅	
I-221	Cl ₂ CH-	C ₂ H ₅	
I-222	Cl ₂ CH-	C ₂ H ₅	
I-223	Cl ₂ CH-	CH ₃ CH ₂ CH ₂ -	-CH ₂ CH ₂ CH ₃
I-224	Cl ₂ CH-	CH ₃ CH ₂ CH ₂ -	-CH ₂ CH ₂ CH ₂ CH ₃
I-225	Cl ₂ CH-	CH ₃ CH ₂ CH ₂ -	
I-226	Cl ₂ CH-	CH ₃ CH ₂ CH ₂ -	-CH ₂ -CH(CH ₃) ₂
I-227	Cl ₂ CH-	CH ₃ CH ₂ CH ₂ -	-C(CH ₃) ₃
I-228	Cl ₂ CH-	CH ₃ CH ₂ CH ₂ -	-C(CH ₂) ₄ -CH ₃
I-229	Cl ₂ CH-	CH ₃ CH ₂ CH ₂ -	
I-230	Cl ₂ CH-	CH ₃ CH ₂ CH ₂ -	
I-231	Cl ₂ CH-	CH ₃ CH ₂ CH ₂ -	-C(CH ₂) ₅ -CH ₃

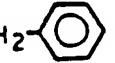
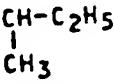
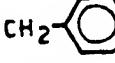
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Table 1 (Continuation)

Example No.	R	R ¹	R ²
I-232	Cl ₂ CH-	CH ₃ CH ₂ CH ₂ -	-CH ₂ -CH=CH ₂
I-233	Cl ₂ CH-	CH ₃ CH ₂ CH ₂ -	-C=C-CH ₂ H ₅ CH ₃
I-234	Cl ₂ CH-	CH ₃ CH ₂ CH ₂ -	-CH ₂ -  CH ₃
I-235	Cl ₂ CH-	CH ₃ CH ₂ CH ₂ -	-CH ₂ -  CH ₃
I-236	Cl ₂ CH-	CH ₃ CH ₂ CH ₂ -	-CH ₂ -  CH ₃
I-237	Cl ₂ CH-	CH ₃ CH ₂ CH ₂ -	-CH ₂ -  CH ₃
I-238	Cl ₂ CH-	CH ₃ CH ₂ CH ₂ -	-CH ₂ -  CH ₃
I-239	Cl ₂ CH-	CH ₃ CH ₂ CH ₂ -	-CH ₂ -  Cl
I-240	Cl ₂ CH-	CH ₃ CH ₂ CH ₂ -	-CH ₂ -  Cl
I-241	Cl ₂ CH-	CH ₃ CH ₂ CH ₂ -	-CH ₂ - 
I-242	Cl ₂ CH-	CH ₃ CH ₂ CH ₂ -	-CH ₂ -C=CH ₂
I-243	Cl ₂ CH-	CH ₃ CH ₂ CH ₂ -	
I-244	Cl ₂ CH-	CH ₃ CH ₂ CH ₂ -	
I-245	Cl ₂ CH-	CH ₃ CH ₂ CH ₂ -	
I-246	Cl ₂ CH-	(CH ₃) ₂ CH-	-CH(CH ₃) ₂
I-247	Cl ₂ CH-	(CH ₃) ₂ CH-	-CH ₂ CH ₂ CH ₂ CH ₃
I-248	Cl ₂ CH-	(CH ₃) ₂ CH-	-CH-C ₂ H ₅ CH ₃

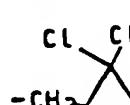
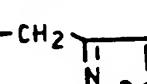
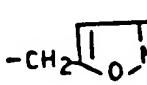
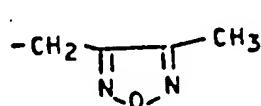
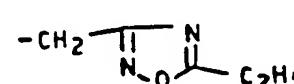
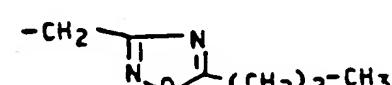
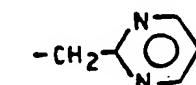
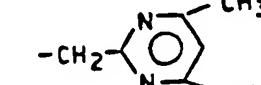
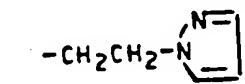
Line A 24-460

Table 1 (Continuation)

Example No.	R	R ¹	R ²
I-249	Cl ₂ CH-	(CH ₃) ₂ CH-	-CH ₂ -CH(CH ₃) ₂
I-250	Cl ₂ CH-	(CH ₃) ₂ CH-	-(CH ₂) ₄ -CH ₃
I-251	Cl ₂ CH-	(CH ₃) ₂ CH-	-CH-(CH ₂) ₂ -CH ₃ CH ₃
I-252	Cl ₂ CH-	(CH ₃) ₂ CH-	-CH ₂ -CH=CH ₂
I-253	Cl ₂ CH-	(CH ₃) ₂ CH-	-CH ₂ - 
I-254	Cl ₂ CH-	(CH ₃) ₂ CH-	
I-255	Cl ₂ CH-	n-C ₄ H ₉ -	-CH-  C ₂ H ₅
I-256	Cl ₂ CH-	n-C ₄ H ₉ -	-CH ₂ -CH(CH ₃) ₂
I-257	Cl ₂ CH-	n-C ₄ H ₉	-C(CH ₃) ₃
I-258	Cl ₂ CH-	n-C ₄ H ₉	-CH ₂ -CH=CH ₂
I-259	Cl ₂ CH-	n-C ₄ H ₉ -	-CH=CH-C ₂ H ₅
I-260	Cl ₂ CH-	CH ₃	-CH ₂ - 
I-261	Cl ₂ CH-	n-C ₄ H ₉ -	
I-262	Cl ₂ CH-	C ₂ H ₅ -  CH-	-CH ₂ -CH(CH ₃) ₂
I-263	Cl ₂ CH-	C ₂ H ₅ -  CH-	
I-264	Cl ₂ CH-	(CH ₃) ₂ CH-CH ₂ -	-CH ₂ -CH=CH ₂
I-265	Cl ₂ CH-	(CH ₃) ₂ CH-CH ₂ -	-CO-H
I-266	Cl ₂ CH-	(CH ₃) ₂ CH-CH ₂ -	-CO-CH ₃
I-267	Cl ₂ CH-	(CH ₃) ₂ CH-CH ₂ -	-CO-CHCl ₂
I-268	Cl ₂ CH-	(CH ₃) ₃ C-	-CH=CH-C ₂ H ₅
I-269	Cl ₂ CH-	(CH ₃) ₃ C-	-CH ₂ -CH ₂ -OH

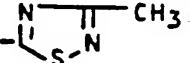
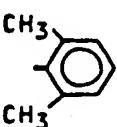
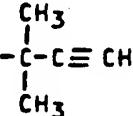
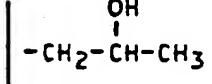
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Table 1 (Continuation)

Example No.	R	R ¹	R ²
I-270	Cl ₂ CH-	CH ₃ -(CH ₂) ₅ -	-(CH ₂) ₅ -CH ₃
I-271	Cl ₂ CH-	CH ₂ =CH-CH ₂ -	-CH ₂ -CH=CH ₂
I-272	Cl ₂ CH-	CH ₂ =CH-CH ₂ -	-CH ₂ -C(CH ₃)=CH ₂
I-273	Cl ₂ CH-	CH ₂ =CH-CH ₂ -	-CH ₂ -CH=N-OCH ₃
I-274	Cl ₂ CH-	CH ₂ =CH-CH ₂ -	-CH ₂ - 
I-275	Cl ₂ CH-	CH ₂ =CH-CH ₂ -	-CH ₂ - 
I-276	Cl ₂ CH-	CH ₂ =CH-CH ₂ -	-CH ₂ - 
I-277	Cl ₂ CH-	CH ₂ =CH-CH ₂ -	-CH ₂ - 
I-278	Cl ₂ CH-	CH ₂ =CH-CH ₂ -	-CH ₂ - 
I-279	Cl ₂ CH-	CH ₂ =CH-CH ₂ -	-CH ₂ - 
I-280	Cl ₂ CH-	CH ₂ =CH-CH ₂ -	-CH ₂ - 
I-281	Cl ₂ CH-	CH ₂ =CH-CH ₂ -	-CH ₂ - 
I-282	Cl ₂ CH-	CH ₂ =CH-CH ₂ -	-CH ₂ - 
I-283	Cl ₂ CH-	CH ₂ =CH-CH ₂ -	-CH ₂ CH ₂ - 
I-284	Cl ₂ CH-	CH ₂ =CH-CH ₂ -	-CH(CH ₃)- 

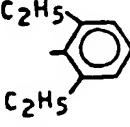
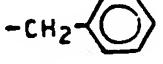
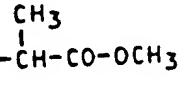
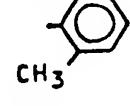
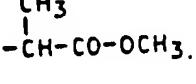
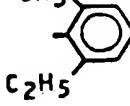
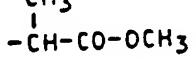
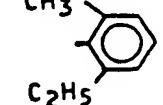
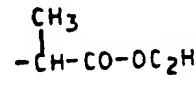
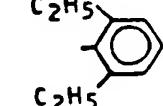
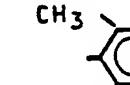
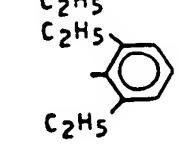
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Table 1 (Continuation)

Example No.	R	R ¹	R ²
I-285	Cl ₂ CH-	CH ₂ =CH-CH ₂ -	-CH ₂ -C(Cl)=CH ₂
I-286	Cl ₂ CH-	CH ₂ =CH-CH ₂ -	
I-287	Cl ₂ CH-	CH ₂ =CH-CH ₂ -	
I-288	Cl ₂ CH-	CH ₂ =CH-CH ₂ -	
I-289	Cl ₂ CH-	CH ₂ =C(CH ₃)-	
I-290	Cl ₂ CH-	C ₂ H ₅ -CH=CH-	
I-291	Cl ₂ CH-	H ₂ C=CH-CH ₂ -	-CH ₂ -CH(OCH ₃) ₂
I-292	Cl ₂ CH-	-CH ₂ -CN	-CH ₂ -CN
I-293	Cl ₂ CH-	-CH ₂ CH ₂ -CN	-CH ₂ CH ₂ -CN
I-294	Cl ₂ CH-	-CH ₂ CH ₂ -OH	-CH ₂ CH ₂ -OH
I-295	Cl ₂ CH-	-CH ₂ CH ₂ -Cl	-CH ₂ CH ₂ -Cl
I-296	Cl ₂ CH-	-CH ₂ CH ₂ OCH ₃	-CH ₂ CH ₂ OCH ₃
I-297	Cl ₂ CH-	-CH ₂ CH ₂ OC ₂ H ₅	-CH ₂ CH ₂ OC ₂ H ₅
I-298	Cl ₂ CH-	-CH ₂ -CH(OH)-CH ₃	
I-299	Cl ₂ CH-	-(CH ₂) ₂ OCOC ₂ H ₅	-(CH ₂) ₂ OCOC ₂ H ₅
I-300	Cl ₂ CH-	-(CH ₂) ₂ OCOCHCl ₂	-(CH ₂) ₂ OCOCHCl ₂
I-301	Cl ₂ CH-	-(CH ₂) ₂ OCOOCH ₃	-(CH ₂) ₂ OCOOCH ₃
I-302	Cl ₂ CH-	-(CH ₂) ₂ OCOSC ₂ H ₅	-(CH ₂) ₂ OCOSC ₂ H ₅
I-303	Cl ₂ CH-	-(CH ₂) ₂ OCONHCH ₃	-(CH ₂) ₂ OCONHCH ₃

See A-24-460

Table 1 (Continuation)

<u>Example R</u>	<u>R¹</u>	<u>R²</u>
I-304 Cl ₂ CH-	-(CH ₂) ₂ OCON(CH ₃) ₂	-(CH ₂) ₂ OCON(CH ₃) ₂
I-305 Cl ₂ CH-	-(CH ₂) ₂ OCONHC ₂ H ₅	-(CH ₂) ₂ OCONHC ₂ H ₅
I-306 Cl ₂ CH-	-(CH ₂) ₂ OCONHCH(CH ₃) ₂	-(CH ₂) ₂ OCONHCH(CH ₃) ₂
I-307 Cl ₂ CH-	-(CH ₂) ₂ OCONH(CH ₂) ₃ CH ₃	-(CH ₂) ₂ OCONH(CH ₂) ₃ CH ₃
I-308 Cl ₂ CH-	-(CH ₂) ₂ OCONHCH ₂ CH=CH ₂	-(CH ₂) ₂ OCONHCH ₂ CH=CH ₂
I-309 Cl ₂ CH-	-(CH ₂) ₃ OSO ₂ CH ₃	-(CH ₂) ₂ OSO ₂ CH ₃
I-310 Cl ₂ CH-	-(CH ₂) ₃ NHCOCHCl ₂	-(CH ₂) ₃ NHCOCHCl ₂
I-311 Cl ₂ CH-	-CH ₂ OCH ₃	
I-312 Cl ₂ CH-	-CH ₂ CH ₂ -SH	
I-313 Cl ₂ CH-	-CH ₂ CO-OC ₂ H ₅	
I-314 Cl ₂ CH-		
I-315 Cl ₂ CH-		
I-316 Cl ₂ CH-		
I-317 Cl ₂ CH-		
I-318 Cl ₂ CH-	-CH ₂ -N=N-	
I-319 Cl ₂ CH-	-CH ₂ -N=N-	

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Table 1 (Continuation)

Example No.	R	R ¹	R ² or -N ⁺ _{R²} R ¹
I-320	Cl ₂ CH-	$ \begin{array}{c} -\text{CH}-\text{CH}_2-\text{OCH}_3 \\ \\ \text{C}=\text{CH}_2 \\ \\ \text{Cl} \end{array} $	
I-321	Cl ₂ CH-	$ \begin{array}{c} \text{CH}_3 \\ \\ -\text{C}=\text{CH}-\text{COCH}_3 \end{array} $	
I-322	Cl ₂ CH-	$ \begin{array}{c} \text{CH}_3 \\ \\ -\text{C}=\text{CH}-\text{COCH}_3 \end{array} $	
I-323	Cl ₂ CH-	$ \begin{array}{c} \text{CH}_3 \\ \\ -\text{C}=\text{CH}-\text{COCH}_3 \end{array} $	
I-324	Cl ₂ CH-	$ \begin{array}{c} \text{CH}_3 \\ \\ -\text{C}=\text{CH}-\text{COCH}_3 \end{array} $	
I-325	Cl ₂ CH-	$ \begin{array}{c} \text{CH}_3 \\ \\ -\text{C}=\text{CH}-\text{COCH}_3 \end{array} $	
I-326	Cl ₂ CH-	$ \begin{array}{c} \text{CH}_3 \\ \\ -\text{C}=\text{CHCOOC}_2\text{H}_5 \end{array} $	
I-327	Cl ₂ CH-	$ \begin{array}{c} \text{O} \\ \\ \text{C}-\text{H} \end{array} $	
I-328	Cl ₂ CH-	-CO-CHCl ₂	
I-329	Cl ₂ CH-		$ -\text{N}=\text{C}\left(\text{N}(\text{CH}_3)_2\right)_2 $
I-330	Cl ₂ CH-		
I-331	Cl ₂ CH-		
I-332	Cl ₂ CH-		

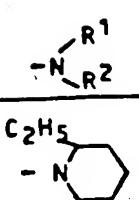
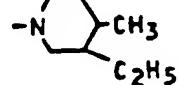
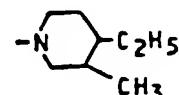
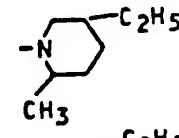
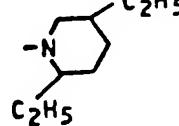
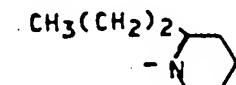
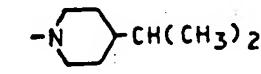
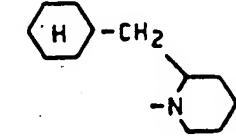
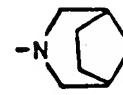
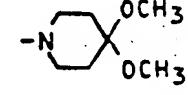
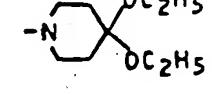
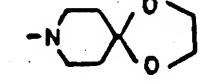
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Table 1 (Continuation)

Example R No.	R ¹	R ²	or	-N ^{R¹} R ²
I-333 Cl ₂ CH-				
I-334 Cl ₂ CH-				
I-335 Cl ₂ CH-				
I-336 Cl ₂ CH-				
I-337 Cl ₂ CH-				
I-338 Cl ₂ CH-				
I-339 Cl ₂ CH-				
I-340 Cl ₂ CH-			*	
I-341 Cl ₂ CH-				
I-342 Cl ₂ CH-				
I-343 Cl ₂ CH-				

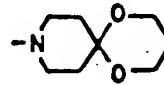
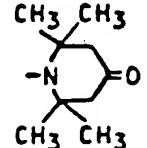
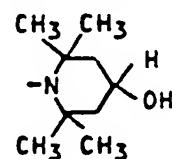
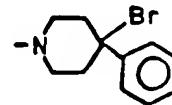
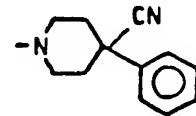
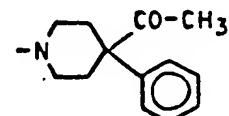
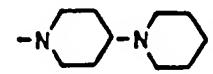
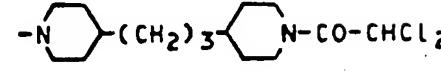
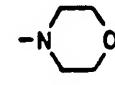
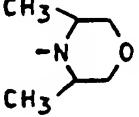
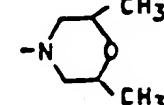
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Table 1 (Continuation)

Example No.	R	R ¹	R ²	or	-N ¹ R ²
I-344	Cl ₂ CH-				
I-345	Cl ₂ CH-				
I-346	Cl ₂ CH-				
I-347	Cl ₂ CH-				
I-348	Cl ₂ CH-				
I-349	Cl ₂ CH-				
I-350	Cl ₂ CH-				
I-351	Cl ₂ CH-				
I-352	Cl ₂ CH-				
I-353	Cl ₂ CH-				
I-354	Cl ₂ CH-				
I-355	Cl ₂ CH-				
I-356	Cl ₂ CH-				

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Table 1 (Continuation)

Example R No.	R ¹	R ²	or	-N ^{R¹} R ²
I-357 Cl ₂ CH-				
I-358 Cl ₂ CH-				
I-359 Cl ₂ CH-				
I-360 Cl ₂ CH-				
I-361 Cl ₂ CH-				
I-362 Cl ₂ CH-				
I-363 Cl ₂ CH-				
I-364 Cl ₂ CH-				
I-365 Cl ₂ CH-				
I-366 Cl ₂ CH-				
I-367 Cl ₂ CH-				

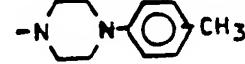
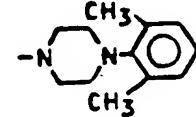
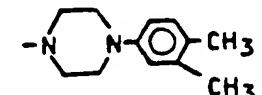
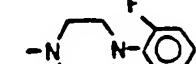
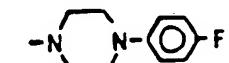
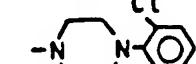
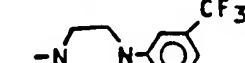
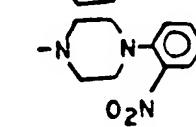
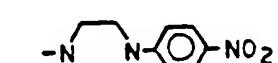
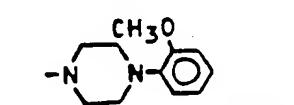
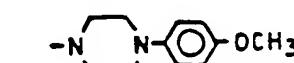
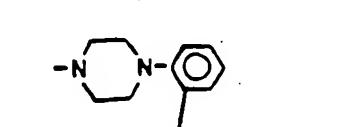
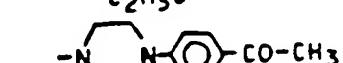
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Table 1 (Continuation)

Example R No.	R ¹	R ²	or	-N-R ¹ R ²
I-368 Cl ₂ CH-				-N-C ₂ H ₄ O-
I-369 Cl ₂ CH-				-N-C(CH ₃) ₂ O-
I-370 Cl ₂ CH-				-N-C(CH ₃) ₂ (CH ₃)O-
I-371 Cl ₂ CH-				-N-C ₂ H ₅ NH ₂ -
I-372 Cl ₂ CH-				-N-C ₂ H ₅ N(CH ₂) ₂ CH ₃ -
I-373 Cl ₂ CH-				-N-C ₂ H ₅ NH-C(=O)H-
I-374 Cl ₂ CH-				-N-C ₂ H ₅ NH-C(=O)CHCl ₂ -
I-375 Cl ₂ CH-				-N-C ₂ H ₅ NH-C(=O)OC ₂ H ₅ -
I-376 Cl ₂ CH-				-N-C ₂ H ₅ NH-CH ₂ -C ₆ H ₅ -
I-377 Cl ₂ CH-				-N-C ₂ H ₅ NH-(CH ₂) ₂ -C ₆ H ₅ -
I-378 Cl ₂ CH-				-N-C ₂ H ₅ NH-CH(C ₆ H ₅) ₂ -
I-379 Cl ₂ CH-				-N-C ₂ H ₅ NH-CH ₂ -CH=CH-C ₆ H ₅ -
I-380 Cl ₂ CH-				-N-C ₂ H ₅ NH-C ₆ H ₅ -
I-381 Cl ₂ CH-				-N-C ₂ H ₅ NH-C ₆ H ₄ CH ₃ -
I-382 Cl ₂ CH-				-N-C ₂ H ₅ NH-C ₆ H ₄ CH ₃ -

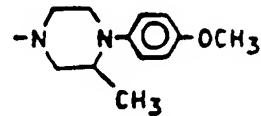
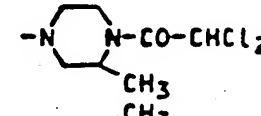
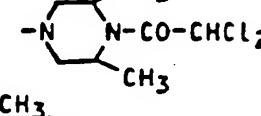
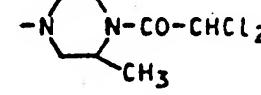
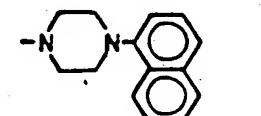
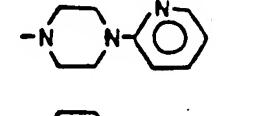
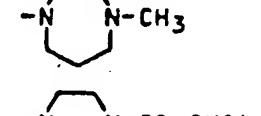
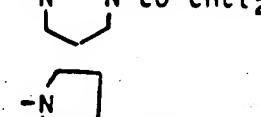
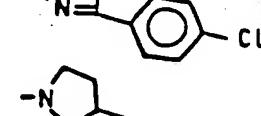
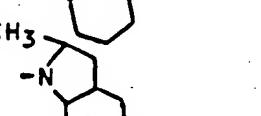
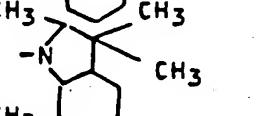
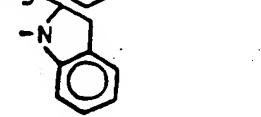
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Table 1 (Continuation)

Example R No.	R ¹	R ²	or	-N(R ¹) -N(R ²)
I-383 Cl ₂ CH-				
I-384 Cl ₂ CH-				
I-385 Cl ₂ CH-				
I-386 Cl ₂ CH-				
I-387 Cl ₂ CH-				
I-388 Cl ₂ CH-				
I-389 Cl ₂ CH-				
I-390 Cl ₂ CH-				
I-391 Cl ₂ CH-				
I-392 Cl ₂ CH-				
I-393 Cl ₂ CH-				
I-394 Cl ₂ CH-				
I-395 Cl ₂ CH-				
I-396 Cl ₂ CH-				

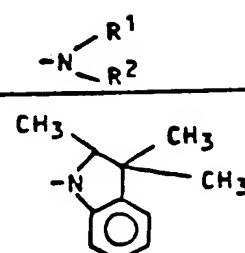
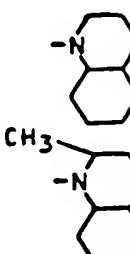
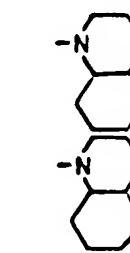
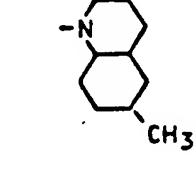
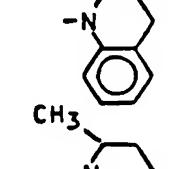
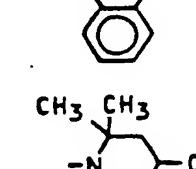
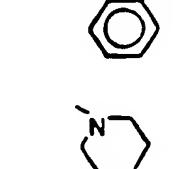
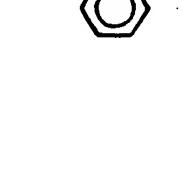
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Table 1 (Continuation)

Example R No.	R ¹	R ²	or	-N(R ¹)R ²
I-397 Cl ₂ CH-				
I-398 Cl ₂ CH-				
I-399 Cl ₂ CH-				
I-400 Cl ₂ CH-				
I-401 Cl ₂ CH-				
I-402 Cl ₂ CH-				
I-403 Cl ₂ CH-				
I-404 Cl ₂ CH-				
I-405 Cl ₂ CH-				
I-406 Cl ₂ CH-				
I-407 Cl ₂ CH-				
I-408 Cl ₂ CH-				
I-409 Cl ₂ CH-				

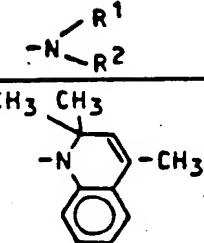
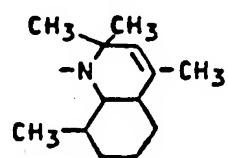
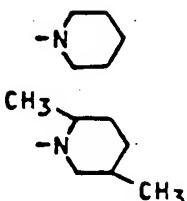
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Table 1 (Continuation)

Example R No.	R ¹	R ²	or	-N-R ¹ R ²
I-410 Cl ₂ CH-				
I-411 Cl ₂ CH-				
I-412 Cl ₂ CH-				
I-413 Cl ₂ CH-				
I-414 Cl ₂ CH-				
I-415 Cl ₂ CH-				
I-416 Cl ₂ CH-				
I-417 Cl ₂ CH-				
I-418 Cl ₂ CH-				
I-419 Cl ₂ CH-				

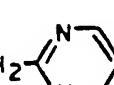
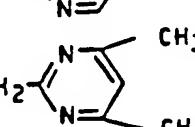
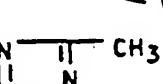
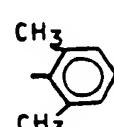
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Table 1 (Continuation)

Example No.	R	R ¹	R ²	or	$\begin{array}{c} R^1 \\ \\ -N- \\ \\ R^2 \end{array}$
I-420	Cl ₂ CH-				
I-421	Cl ₂ CH-				
I-422	Cl ₃ C-	H		-CH ₂ -CH=CH ₂	
I-423	Cl ₃ C-	H		-CH ₂ CH ₂ -Br	
I-424	Cl ₃ C-	H		$\begin{array}{c} CH_3 \\ \\ -C-C_2H_5 \\ \\ CN \end{array}$	
I-425	Cl ₃ C-	H		-CH ₂ -NHCOCH ₂ Cl	
I-426	Cl ₃ C-	CH ₃		CH ₃	
I-427	Cl ₃ C-	CH ₃		$\begin{array}{c} -CH-C\equiv CH \\ \\ CH_3 \end{array}$	
I-428	Cl ₃ C-	C ₂ H ₅		-CH ₂ CH ₂ CH ₂ CH ₃	
I-429	Cl ₃ C-	-CH ₂ CH ₂ CH ₃		-CH ₂ CH ₂ CH ₃	
I-430	Cl ₃ C-	-CH(CH ₃) ₂		-CH(CH ₃) ₂	
I-431	Cl ₃ C-	-CH ₂ CH(CH ₃) ₂		-CH ₂ CH(CH ₃) ₂	
I-432	Cl ₃ C-	-CH ₂ -CH=CH ₂		-CH ₂ -CH=CH ₂	
I-433	Cl ₃ C-				
I-434	Cl ₃ C-				
I-435	Br ₃ C-	H		$\begin{array}{c} CH_3 \\ \\ -C-C\equiv CH \\ \\ CH_3 \end{array}$	

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Table 1 (Continuation)

Example No.	R	R ¹	R ²	or	-N ^{R¹} R ²
I-436	Br ₃ C-	H	$\begin{array}{c} \text{CH}_3 \\ \\ -\text{C}-\text{CN} \\ \\ \text{CH}_3 \end{array}$		
I-437	Br ₃ C-	H	$-\text{CH}_2-\text{CH}=\text{CH}_2$		
I-438	Br ₃ C-	CH ₃	$\begin{array}{c} \text{CH}_3 \\ \\ -\text{CH}-\text{C}\equiv\text{CH} \end{array}$		
I-439	Br ₃ C-	$\begin{array}{c} \text{CH}_3 \\ \\ \text{CH}_3 \end{array}$	$-\text{CH}_2-\text{CH}=\text{CH}_2$	$-\text{CH}_2-\text{CH}=\text{CH}_2$	
I-440	Cl-CH-		$-\text{CH}_2-\text{CH}=\text{CH}_2$	$-\text{CH}_2-\text{CH}=\text{CH}_2$	
I-441	Cl-CH-	$\begin{array}{c} \text{CH}_3 \\ \\ \text{CH}_3 \end{array}$	$-\text{CH}_2-\text{CH}=\text{CH}_2$	$-\text{CH}_2-\text{CO-CH}_3$	
I-442	Cl-CH-	$\begin{array}{c} \text{CH}_3 \\ \\ \text{CH}_3 \end{array}$	$-\text{CH}_2-\text{CH}=\text{CH}_2$	$-\text{CH}_2-\text{CH}=\text{N-OCH}_3$	
I-443	Cl-CH-	$\begin{array}{c} \text{CH}_3 \\ \\ \text{CH}_3 \end{array}$	$-\text{CH}_2-\text{CH}=\text{CH}_2$	$-\text{CH}_2-\text{C}=\text{N-OCH}_3$	$\begin{array}{c} \text{CH}_3 \\ \\ \text{CH}_3 \end{array}$
I-444	Cl-CH-	$\begin{array}{c} \text{CH}_3 \\ \\ \text{CH}_3 \end{array}$	$-\text{CH}_2-\text{CH}=\text{CH}_2$	$-\text{CH}_2-\text{C}(=\text{O})-\text{N}$	$\begin{array}{c} \text{CH}_3 \\ \\ \text{N} \end{array}$
I-445	Cl-CH-	$\begin{array}{c} \text{CH}_3 \\ \\ \text{CH}_3 \end{array}$	$-\text{CH}_2-\text{CH}=\text{CH}_2$	$-\text{CH}_2-$	
I-446	Cl-CH-	$\begin{array}{c} \text{CH}_3 \\ \\ \text{CH}_3 \end{array}$	$-\text{CH}_2-\text{CH}=\text{CH}_2$	$-\text{CH}_2-$	
I-447	Cl-CH-	$\begin{array}{c} \text{CH}_3 \\ \\ \text{CH}_3 \end{array}$	$-\text{CH}_2-\text{CH}=\text{CH}_2$		
I-448	Cl-CH-	$\begin{array}{c} \text{CH}_3 \\ \\ \text{CH}_3 \end{array}$	$-\text{CH}-\text{COOCH}_3$		
I-449	Cl-CH-	$\begin{array}{c} \text{CH}_3 \\ \\ \text{CH}_3 \end{array}$			

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Table 1 (Continuation)

Example No.	R	R ¹	R ²	or	R^1 R^2
I-450		$\begin{array}{c} \text{CH}_3 \\ \\ \text{Cl}-\text{CH}- \end{array}$			
I-451		$\begin{array}{c} \text{CH}_3 \\ \\ \text{Cl}-\text{CH}- \end{array}$			
I-452		$\begin{array}{c} \text{CH}_3 \\ \\ \text{Cl}-\text{CH}- \end{array}$			
I-453		$\begin{array}{c} \text{CH}_3 \\ \\ \text{Cl}-\text{CH}- \end{array}$			
I-454		$\begin{array}{c} \text{CH}_3 \\ \\ \text{Cl}-\text{CH}- \end{array}$			
I-455		$\begin{array}{c} \text{CH}_3 \\ \\ \text{Cl}-\text{CH}- \end{array}$			
I-456		$\begin{array}{c} \text{CH}_3 \\ \\ \text{Cl}-\text{CH}- \end{array}$			
I-457		$\begin{array}{c} \text{CH}_3 \\ \\ \text{Cl}-\text{CH}- \end{array}$			
I-458		$\begin{array}{c} \text{CH}_3 \\ \\ \text{Cl}-\text{CH}- \end{array}$			
I-459		$\begin{array}{c} \text{CH}_3 \\ \\ \text{Cl}-\text{CH}- \end{array}$			
I-460		$\begin{array}{c} \text{CH}_3 \\ \\ \text{Cl}-\text{CH}- \end{array}$			

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Table 1 (Continuation)

Example No.	R	R ¹	R ²	or	-N ^{R¹} R ²
I-461	$\begin{array}{c} \text{CH}_3 \\ \\ \text{Cl}-\text{CH}- \end{array}$				$\begin{array}{c} \text{-N} \\ \\ \text{C}_6\text{H}_5 \\ \\ \text{N}-\text{CH}_3 \end{array}$
I-462	$\begin{array}{c} \text{CH}_3 \\ \\ \text{Cl}-\text{CH}- \end{array}$				$\begin{array}{c} \text{-N} \\ \\ \text{C}_6\text{H}_5 \\ \\ \text{N}-\text{COOC}_2\text{H}_5 \end{array}$
I-463	$\begin{array}{c} \text{CH}_3 \\ \\ \text{Cl}-\text{CH}- \end{array}$				$\begin{array}{c} \text{-N} \\ \\ \text{C}_6\text{H}_5 \\ \\ \text{N}-\text{(CH}_2)_2-\text{C}_6\text{H}_5 \end{array}$
I-464	$\begin{array}{c} \text{CH}_3 \\ \\ \text{Cl}-\text{CH}- \end{array}$				$\begin{array}{c} \text{-N} \\ \\ \text{C}_6\text{H}_5 \\ \\ \text{N}-\text{CH}-\text{C}_6\text{H}_5 \end{array}$
I-465	$\begin{array}{c} \text{CH}_3 \\ \\ \text{Cl}-\text{CH}- \end{array}$				$\begin{array}{c} \text{-N} \\ \\ \text{C}_6\text{H}_5 \\ \\ \text{N}-\text{C}_6\text{H}_5 \end{array}$
I-466	$\begin{array}{c} \text{CH}_3 \\ \\ \text{Cl}-\text{CH}- \end{array}$				$\begin{array}{c} \text{-N} \\ \\ \text{C}_6\text{H}_5 \\ \\ \text{N}-\text{C}_6\text{H}_5 \end{array}$
I-467	$\begin{array}{c} \text{CH}_3 \\ \\ \text{Cl}-\text{CH}_2- \end{array}$				$\begin{array}{c} \text{-N} \\ \\ \text{C}_6\text{H}_5 \\ \\ \text{N}-\text{C}_6\text{H}_5-\text{CH}_3 \end{array}$
I-468	$\begin{array}{c} \text{CH}_3 \\ \\ \text{Cl}-\text{CH}_2- \end{array}$				$\begin{array}{c} \text{-N} \\ \\ \text{C}_6\text{H}_5 \\ \\ \text{N}-\text{C}_6\text{H}_5-\text{CH}_3 \end{array}$
I-469	$\begin{array}{c} \text{CH}_3 \\ \\ \text{Cl}-\text{CH}- \end{array}$				$\begin{array}{c} \text{-N} \\ \\ \text{C}_6\text{H}_5 \\ \\ \text{N}-\text{C}_6\text{H}_5-\text{C}_2\text{H}_5\text{O} \end{array}$
I-470	$\begin{array}{c} \text{CH}_3 \\ \\ \text{Cl}-\text{CH}- \end{array}$				$\begin{array}{c} \text{-N} \\ \\ \text{C}_6\text{H}_5 \\ \\ \text{N}-\text{C}_6\text{H}_5-\text{CF}_3 \end{array}$
I-471	$\begin{array}{c} \text{CH}_3 \\ \\ \text{Cl}-\text{CH}- \end{array}$				$\begin{array}{c} \text{-N} \\ \\ \text{C}_6\text{H}_5 \\ \\ \text{N}-\text{C}_6\text{H}_5-\text{N} \end{array}$
I-472	$\begin{array}{c} \text{CH}_3 \\ \\ \text{Cl}-\text{CH}- \end{array}$				$\begin{array}{c} \text{-N} \\ \\ \text{C}_6\text{H}_5 \\ \\ \text{N}-\text{CO}-\text{CH}-\text{Cl} \end{array}$
I-473	$\begin{array}{c} \text{CH}_3 \\ \\ \text{Cl}-\text{CH}- \end{array}$				$\begin{array}{c} \text{-N} \\ \\ \text{C}_6\text{H}_5 \\ \\ \text{N}-\text{CO}-\text{CH}-\text{Cl} \\ \\ \text{CH}_3 \end{array}$

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Table 1 (Continuation)

Example No.	R	R ¹	R ² or -N ^{R1} R ²
I-474	$\begin{array}{c} \text{CH}_3 \\ \\ \text{Cl}-\text{CH}- \end{array}$		$\begin{array}{c} \text{CH}_3 \\ \\ -\text{N} \\ \\ \text{CH}_3 \end{array}$ $\begin{array}{c} \text{CH}_3 \\ \\ \text{N}-\text{CO}-\text{CH}-\text{Cl} \\ \\ \text{CH}_3 \end{array}$
I-475	$\begin{array}{c} \text{CH}_3 \\ \\ \text{Cl}-\text{CH}- \end{array}$		$\begin{array}{c} \text{CH}_3 \\ \\ -\text{N} \\ \\ \text{CH}_3 \end{array}$ $\begin{array}{c} \text{CH}_3 \\ \\ \text{N}-\text{CO}-\text{CH}-\text{Cl} \\ \\ \text{CH}_3 \end{array}$
I-476	$\text{Cl}-\text{CH}_2\text{CH}_2-$	H	$\begin{array}{c} \text{CH}_3 \\ \\ -\text{C}-\text{C}\equiv\text{CH} \\ \\ \text{CH}_3 \end{array}$
I-477	$\text{Cl}-\text{CH}_2\text{CH}_2-$	CH_3	$\begin{array}{c} \text{CH}_3 \\ \\ -\text{CH}-\text{C}\equiv\text{CH} \end{array}$
I-478	$\text{Cl}-\text{CH}_2\text{CH}_2-$	$-\text{CH}_2-\text{CH}=\text{CH}_2$	$-\text{CH}_2-\text{CH}=\text{CH}_2$
I-479	$\begin{array}{c} \text{Cl} \\ \\ \text{CH}_3-\text{C}- \\ \\ \text{Cl} \end{array}$	$-\text{CH}_2-\text{CH}=\text{CH}_2$	$-\text{CH}_2-\text{CH}=\text{CH}_2$
I-480	$\begin{array}{c} \text{Br} \\ \\ \text{CH}_3-\text{CH}- \end{array}$	H	$\begin{array}{c} \text{CH}_3 \\ \\ -\text{C}-\text{C}\equiv\text{CH} \\ \\ \text{CH}_3 \end{array}$
I-481	$\begin{array}{c} \text{Br} \\ \\ \text{CH}_3-\text{CH}- \end{array}$	CH_3	$\begin{array}{c} \text{CH}_3 \\ \\ -\text{CH}-\text{C}\equiv\text{CH} \end{array}$
I-482	$\begin{array}{c} \text{Br} \\ \\ \text{CH}_3-\text{CH}- \\ \\ \text{F} \end{array}$	$-\text{CH}_2-\text{CH}=\text{CH}_2$	$-\text{CH}_2-\text{CH}=\text{CH}_2$
I-483	$\begin{array}{c} \text{F}_3\text{C}-\text{C}-\text{C}- \\ \\ \\ \text{F} \end{array}$	$-\text{CH}_2-\text{CH}=\text{CH}_2$	$-\text{CH}_2-\text{CH}=\text{CH}_2$
I-484	$\text{BrCH}_2\text{CH}_2\text{CH}_2-$	H	$-\text{SO}_2\text{Cl}$
I-485	$\begin{array}{c} \text{CH}_3 \\ \\ \text{Br}-\text{C}- \\ \\ \text{CH}_3 \end{array}$	H	$\begin{array}{c} \text{CH}_3 \\ \\ -\text{C}-\text{C}\equiv\text{CH} \\ \\ \text{CH}_3 \end{array}$

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Table 1 (Continuation)

Example No.	R	R ¹	R ²
I-486	Br-C(CH ₃) ₂ -	-CH ₂ -CH=CH ₂	-CH ₂ -CH=CH ₂
I-487	Br-(CH ₂) ₅ -	-CH ₂ -CH=CH ₂	-CH ₂ -CH=CH ₂
I-488	HO-CH ₂ -	C ₂ H ₅	C ₂ H ₅
I-489	NC-CH ₂ -	-CH ₂ -CH=CH ₂	-CH ₂ -CH=CH ₂
I-490	NCO-CH ₂ -	-CH ₂ -CH=CH ₂	-CH ₂ -CH=CH ₂
I-491	Cyclohexylmethyl-	H	-C(CH ₃) ₂ -C≡CH
I-492	Cyclohexylmethyl-	CH ₃	-CH(CH ₃)-C≡CH
I-493	Cyclohexylmethyl-	-CH ₂ -CH=CH ₂	-CH ₂ -CH=CH ₂
I-494	Cyclohexylmethyl-	CH ₃	-CH(CH ₃)-C≡CH
I-495	Cyclohexylmethyl-	-CH ₂ -CH=CH ₂	-CH ₂ -CH=CH ₂
I-496	Cyclohexylmethyl-	CH ₃	-CH(CH ₃)-C≡CH
I-497	Cyclohexylmethyl-	-CH ₂ -CH=CH ₂	-CH ₂ -CH=CH ₂
I-498	CH ₃ OCH ₂ CH ₂ -	-C ₂ H ₅	-C ₂ H ₅

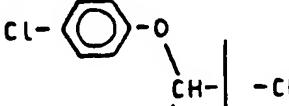
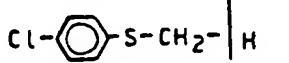
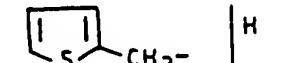
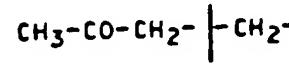
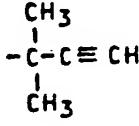
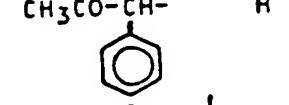
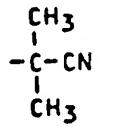
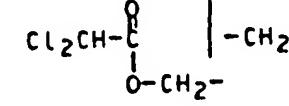
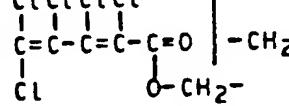
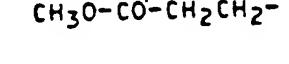
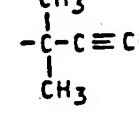
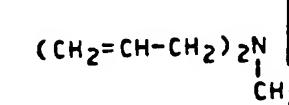
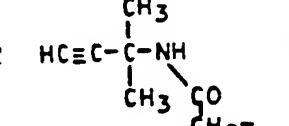
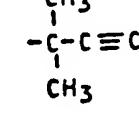
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Table 1 (continuation)

Example No.	R	R ¹	R ²
I-499		-CH ₂ -CH=CH ₂	-CH ₂ -CH=CH ₂
I-500		-CH ₂ -CH=CH ₂	-CH ₂ -CH=CH ₂
I-501		-CH ₂ -CH=CH ₂	-CH ₂ -CH=CH ₂
I-502		H	
I-503		CH ₃	
I-504		-CH ₂ -CH=CH ₂	-CH ₂ -CH=CH ₂
I-505		H	
I-506		CH ₃	
I-507		H	
I-508		OCH ₃	-CH ₂ -CH=CH ₂
I-509		H	
I-510		CH ₃	
I-511		-CH ₂ -CH=CH ₂	-CH ₂ -CH=CH ₂

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Table 1 (Continuation)

Example No.	R	R ¹	R ²
I-512		-CH ₂ CH=CH ₂	-CH ₂ -CH=CH ₂
I-513		H	-CH ₂ -CH(CH ₃) ₂ CH ₃
I-514		H	-C-CN CH ₃
I-515			-CH ₂ -CH=CH ₂
I-516		H	
I-517		H	
I-518			-CH ₂ -CH=CH ₂
I-519			-CH ₂ -CH=CH ₂
I-520		H	
I-521			-CH ₂ -CH=CH ₂
I-522		H	

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Table 1 (Continuation)

Example No.	R	R ¹	R ²
I-523	$\begin{array}{c} \text{CH}_3 \quad \text{CH}_3 \\ \quad \\ \text{HC}\equiv\text{C}-\text{CH}-\text{N} \\ \\ \text{C}=\text{O} \\ \\ \text{CH}_2^- \end{array}$	-CH ₃	$\begin{array}{c} \text{CH}_3 \\ \\ -\text{CH}-\text{C}\equiv\text{CH} \end{array}$
I-524	$\begin{array}{c} (\text{CH}_2=\text{CH}-\text{CH}_2)_2\text{N} \\ \\ \text{C}=\text{O} \\ \\ \text{CH}_2^- \end{array}$	-CH ₂ CH=CH ₂	-CH ₂ -CH=CH ₂
I-525	$\begin{array}{c} \text{CH}_3 \quad \text{O} \\ \quad \\ \text{HC}\equiv\text{C}-\text{CH}-\text{N}-\text{C}-(\text{CH}_2)_2^- \\ \\ \text{CH}_3 \quad \text{O} \\ \quad \\ \text{CH}_3-\text{C}-(\text{CH}_2)_2^- \end{array}$	-CH ₃	$\begin{array}{c} \text{CH}_3 \\ \\ -\text{CH}-\text{C}\equiv\text{CH} \end{array}$
I-526	$\begin{array}{c} (\text{CH}_2=\text{CHCH}_2)_2\text{N}-\text{C}-(\text{CH}_2)_2^- \\ \\ \text{CH}_3 \quad \text{O} \\ \quad \\ \text{CH}_3-\text{C}-(\text{CH}_2)_3^- \end{array}$	-CH ₂ -CH=CH ₂	$\begin{array}{c} \text{CH}_3 \\ \\ -\text{CH}_2-\text{CH}=\\ \text{CH}_2 \\ \\ \text{CH}_3 \\ \\ -\text{CH}-\text{C}\equiv\text{CH} \end{array}$
I-527		-CH ₃	
I-528	$\begin{array}{c} (\text{H}_2\text{C}=\text{CHCH}_2)_2\text{N}-\text{C}-(\text{CH}_2)_3^- \\ \\ \text{O} \end{array}$	-CH ₂ -CH=CH ₂	-CH ₂ -CH=CH ₂
I-529	$\begin{array}{c} \text{CH}_3 \quad \text{CH}_3 \\ \quad \\ \text{HC}\equiv\text{C}-\text{C}-\text{NH}-\text{C}-\text{C}- \\ \quad \\ \text{CH}_3 \quad \text{CH}_3 \end{array}$	H	$\begin{array}{c} \text{CH}_3 \\ \\ -\text{C}-\text{C}\equiv\text{CH} \\ \\ \text{CH}_3 \end{array}$
I-530	$\begin{array}{c} \text{CH}_3 \\ \\ (\text{H}_2\text{C}=\text{CHCH}_2)_2\text{N}-\text{C}-\text{C}- \\ \\ \text{CH}_3 \end{array}$	-CH ₂ -CH=CH ₂	-CH ₂ -CH=CH ₂
I-531	$\begin{array}{c} \text{CH}_3 \quad \text{CH}_3 \\ \quad \\ \text{HC}\equiv\text{C}-\text{CH}-\text{N}-\text{C}-\text{C}- \\ \quad \\ \text{CH}_3 \quad \text{CH}_3 \end{array}$	-CH ₃	$\begin{array}{c} \text{CH}_3 \\ \\ -\text{CH}-\text{C}\equiv\text{CH} \end{array}$
I-532	$\begin{array}{c} \text{CH}_3 \\ \\ \text{HC}\equiv\text{C}-\text{CH}-\text{N}-\text{C}-(\text{CH}_2)_4^- \\ \\ \text{CH}_3 \end{array}$	-CH ₃	$\begin{array}{c} \text{CH}_3 \\ \\ -\text{CH}-\text{C}\equiv\text{CH} \end{array}$
I-533	$\begin{array}{c} (\text{CH}_2=\text{CHCH}_2)_2\text{N}-\text{C}-(\text{CH}_2)_4^- \\ \\ \text{O} \end{array}$	-CH ₂ -CH=CH ₂	-CH ₂ -CH=CH ₂

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Table 1 (Continuation)

Example No.	R	R ¹	R ²
I-534	$\text{HC}\equiv\text{C}-\underset{\substack{\text{CH}_3 \\ }}{\text{C}-\text{NH}-\underset{\substack{\text{O} \\ }}{\text{C}-\text{CH}_2-\underset{\substack{\text{CH}_3 \\ }}{\text{C}-\text{CH}_2-}}$	H	$\begin{array}{c} \text{CH}_3 \\ \\ -\text{C}-\text{C}\equiv\text{CH} \\ \\ \text{CH}_3 \end{array}$
I-535	$\text{HC}\equiv\text{C}-\underset{\substack{\text{CH}_3 \\ }}{\text{CH}-\underset{\substack{\text{O} \\ }}{\text{N}-\underset{\substack{\text{CH}_3 \\ }}{\text{C}-\text{CH}_2-\text{O}-\text{CH}_2-}}$	-CH ₃	$\begin{array}{c} \text{CH}_3 \\ \\ -\text{CH}-\text{C}\equiv\text{CH} \end{array}$
I-536	$(\text{CH}_2=\text{CHCH}_2)_2\underset{\substack{\text{O} \\ }}{\text{N}-\text{C}-\text{CH}_2-\text{O}-\text{CH}_2-$	$-\text{CH}_2-\text{CH}=\text{CH}_2$	$-\text{CH}_2-\text{CH}=\text{CH}_2$
I-537	$(\text{CH}_2=\text{CHCH}_2)_2\underset{\substack{\text{O} \\ }}{\text{N}-\underset{\substack{\text{S} \\ }}{\text{CH}_2-}}$	$-\text{CH}_2-\text{CH}=\text{CH}_2$	$-\text{CH}_2-\text{CH}=\text{CH}_2$
I-538	CH ₂ =CH-	H	$\begin{array}{c} \text{CH}_3 \\ \\ -\text{C}-\text{C}\equiv\text{CH} \\ \\ \text{CH}_3 \end{array}$
I-539	CH ₂ =CH-	CH ₃	$\begin{array}{c} \text{CH}_3 \\ \\ -\text{CH}-\text{C}\equiv\text{CH} \end{array}$
I-540	CH ₃ -CH=CH-	H	$\begin{array}{c} \text{CH}_3 \\ \\ -\text{C}-\text{C}\equiv\text{CH} \\ \\ \text{CH}_3 \end{array}$
I-541	CH ₃ -CH=CH-	-CH ₂ -CH=CH ₂	$-\text{CH}_2-\text{CH}=\text{CH}_2$
I-542	CH ₂ = $\overset{\substack{\text{CH}_3 \\ }}{\text{C}-}$	H	$\begin{array}{c} \text{CH}_3 \\ \\ -\text{C}-\text{C}\equiv\text{CH} \\ \\ \text{CH}_3 \end{array}$
I-543	(CH ₃) ₂ C=CH-	H	$\begin{array}{c} \text{CH}_3 \\ \\ -\text{C}-\text{C}\equiv\text{CH} \\ \\ \text{CH}_3 \end{array}$
I-544	(CH ₃) ₂ C=CH-	-CH ₃	$\begin{array}{c} \text{CH}_3 \\ \\ -\text{CH}-\text{C}\equiv\text{CH} \end{array}$
I-545	CH ₃ -CH=CH-CH=CH-	H	$\begin{array}{c} \text{CH}_3 \\ \\ -\text{C}-\text{C}\equiv\text{CH} \\ \\ \text{CH}_3 \end{array}$

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Table 1 (Continuation)

Example No.	R	R ¹	R ²
I-546	$\text{CH}_3-\text{CH}=\text{CH}-\text{CH}=\text{CH}-$	$-\text{CH}_2-\text{CH}=\text{CH}_2$	$-\text{CH}_2-\text{CH}=\text{CH}_2$
I-547	$\text{Cl}-\text{CH}=\text{C}-$	$-\text{CH}_3$	$\begin{array}{c} \text{CH}_3 \\ \\ -\text{CH}-\text{C}\equiv\text{CH} \end{array}$
I-548	$\begin{array}{c} \text{CH}_3 \\ \\ \text{HO}-\text{C}=\text{C}- \\ \\ \text{COOCH}_3 \end{array}$	H	$\begin{array}{c} \text{Cl} \\ \\ \text{Cl} \end{array}$
I-549	$\text{C}_6\text{H}_5-\text{CH}=\text{CH}-$	H	$-\text{C}(\text{CH}_3)_3$
I-550	$\text{C}_6\text{H}_5-\text{CH}=\text{CH}-$	H	$\begin{array}{c} \text{CH}_3 \\ \\ -\text{C}-\text{CN} \\ \\ \text{CH}_3 \end{array}$
I-551	$\text{C}_6\text{H}_5-\text{CH}=\text{CH}-$	CH_3	$-\text{CH}-\text{C}\equiv\text{CH}$
I-552	$\text{C}_6\text{F}_5-\text{CH}=\text{CH}-$	$-\text{CH}_2-\text{CH}=\text{CH}_2$	$-\text{CH}_2-\text{CH}=\text{CH}_2$
I-553	$\text{C}_6\text{F}_5-\text{CH}=\text{CH}-$	H	$\begin{array}{c} \text{CH}_3 \\ \\ -\text{C}-\text{CN} \\ \\ \text{CH}_3 \end{array}$
I-554	$\text{C}_6\text{F}_5-\text{CH}=\text{CH}-$	$-\text{CH}_2-\text{CH}=\text{CH}_2$	$-\text{CH}_2-\text{CH}=\text{CH}_2$
I-555	$\text{F}-\text{C}_6\text{H}_5-\text{CH}=\text{CH}-$	$-\text{CH}_2-\text{CH}=\text{CH}_2$	$-\text{CH}_2-\text{CH}=\text{CH}_2$
I-556	$\text{Cl}-\text{C}_6\text{H}_5-\text{CH}=\text{CH}-$	$-\text{CH}_2-\text{CH}=\text{CH}_2$	$-\text{CH}_2-\text{CH}=\text{CH}_2$
I-557	$\text{CH}_3-\text{C}_6\text{H}_5-\text{CH}=\text{CH}-$	H	$\begin{array}{c} \text{CH}_3 \\ \\ -\text{C}-\text{C}\equiv\text{CH} \\ \\ \text{CH}_3 \end{array}$
I-558	$\text{CH}_3-\text{C}_6\text{H}_5-\text{CH}=\text{CH}-$	$-\text{CH}_2-\text{CH}=\text{CH}_2$	$-\text{CH}_2-\text{CH}=\text{CH}_2$

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Table 1 (Continuation)

Example No.	R	R ¹	R ²
I-559		H	$\begin{array}{c} \text{CH}_3 \\ \\ -\text{C}-\text{C}\equiv\text{CH} \\ \\ \text{CH}_3 \end{array}$
I-560		H	$\begin{array}{c} \text{CH}_3 \\ \\ -\text{C}-\text{CN} \\ \\ \text{CH}_3 \end{array}$
I-561		H	$\begin{array}{c} \text{CH}_3 \\ \\ -\text{C}-\text{C}\equiv\text{CH} \\ \\ \text{CH}_3 \end{array}$
I-562		-CH ₂ -CH=CH ₂	-CH ₂ -CH=CH ₂
I-563		H	$\begin{array}{c} \text{CH}_3 \\ \\ -\text{C}-\text{C}\equiv\text{CH} \\ \\ \text{CH}_3 \end{array}$
I-564		CH ₃	$\begin{array}{c} \text{CH}_3 \\ \\ -\text{CH}-\text{C}\equiv\text{CH} \end{array}$
I-565		-CH ₂ -CH=CH ₂	-CH ₂ -CH=CH ₂
I-566		H	$\begin{array}{c} \text{CH}_3 \\ \\ -\text{C}-\text{CN} \\ \\ \text{CH}_3 \end{array}$
I-567		H	$\begin{array}{c} \text{CH}_3 \\ \\ -\text{C}-\text{C}\equiv\text{CH} \\ \\ \text{CH}_3 \end{array}$
I-568		CH ₃	$\begin{array}{c} \text{CH}_3 \\ \\ -\text{CH}-\text{C}\equiv\text{CH} \end{array}$
I-569		-CH ₂ -CH=CH ₂	-CH ₂ -CH=CH ₂

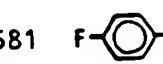
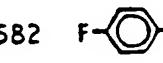
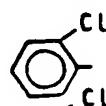
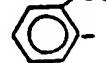
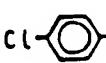
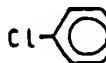
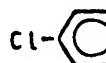
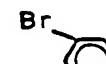
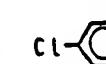
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Table 1 (Continuation)

Example No.	R	R ¹	R ²	
I-570		H	$\begin{array}{c} \text{CH}_3 \\ \\ -\text{C}-\text{C}\equiv\text{CH} \\ \\ \text{CH}_3 \end{array}$	
I-571		$-\text{CH}_2-\text{CH}=\text{CH}_2$	$-\text{CH}_2-\text{CH}=\text{CH}_2$	
I-572		H	$\begin{array}{c} \text{CH}_3 \\ \\ -\text{C}-\text{C}\equiv\text{CH} \\ \\ \text{CH}_3 \end{array}$	
I-573		H	$\begin{array}{c} \text{CH}_3 \\ \\ -\text{C}-\text{CN} \\ \\ \text{CH}_3 \end{array}$	
I-574		$\begin{array}{c} \text{CH}_3 \\ \\ \text{O} \\ \\ \text{C}-\text{NH}-\text{C}-\text{C}\equiv\text{CH} \\ \\ \text{CH}_3 \end{array}$	H	$\begin{array}{c} \text{CH}_3 \\ \\ -\text{C}-\text{C}\equiv\text{CH} \\ \\ \text{CH}_3 \end{array}$
I-575		$-\text{CH}_2-\text{CH}=\text{CH}_2$	$-\text{CH}_2-\text{CH}=\text{CH}_2$	
I-576		CH ₃	$\begin{array}{c} \text{CH}_3 \\ \\ -\text{CH}-\text{C}\equiv\text{CH} \end{array}$	
I-577		$-\text{CH}_2-\text{CH}=\text{CH}_2$	$-\text{CH}_2-\text{CH}=\text{CH}_2$	
I-578		H	$\begin{array}{c} \text{CH}_3 \\ \\ -\text{C}-\text{C}\equiv\text{CH} \\ \\ \text{CH}_3 \\ \\ \text{CH}_3 \\ \\ -\text{CH}-\text{C}\equiv\text{CH} \end{array}$	
I-579		CH ₃	$-\text{CH}_2-\text{CH}=\text{CH}_2$	
I-580		$-\text{CH}_2-\text{CH}=\text{CH}_2$	$-\text{CH}_2-\text{CH}=\text{CH}_2$	

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Table 1 (Continuation)

example No.	R	R ¹	R ²
I-581		H	$\begin{array}{c} \text{CH}_3 \\ \\ -\text{C}-\text{CN} \\ \\ \text{CH}_3 \end{array}$
I-582		$-\text{CH}_2=\text{CH}=\text{CH}_2$	$-\text{CH}_2-\text{CH}=\text{CH}_2$
I-583		CH ₃	$\begin{array}{c} \text{CH}_3 \\ \\ -\text{CH}-\text{C}\equiv\text{CH} \end{array}$
I-584		$-\text{CH}_2-\text{CH}=\text{CH}_2$	$-\text{CH}_2-\text{CH}=\text{CH}_2$
I-585		H	$\begin{array}{c} \text{CH}_3 \\ \\ -\text{C}-\text{C}\equiv\text{CH} \\ \\ \text{CH}_3 \end{array}$
I-586		CH ₃	$\begin{array}{c} \text{CH}_3 \\ \\ -\text{CH}-\text{C}\equiv\text{CH} \end{array}$
I-587		$-\text{CH}_2-\text{CH}=\text{CH}_2$	$-\text{CH}_2-\text{CH}=\text{CH}_2$
I-588		H	$-\text{C}(\text{CH}_3)_3$
I-589		-CH ₃	$\begin{array}{c} \text{CH}_3 \\ \\ -\text{CH}-\text{C}\equiv\text{CH} \end{array}$
I-590		$-\text{CH}_2-\text{CH}=\text{CH}_2$	$-\text{CH}_2-\text{CH}=\text{CH}_2$
I-591		H	$\begin{array}{c} \text{CH}_3 \\ \\ -\text{C}-\text{C}\equiv\text{CH} \\ \\ \text{CH}_3 \end{array}$
I-592		-CH ₃	$\begin{array}{c} \text{CH}_3 \\ \\ -\text{CH}-\text{C}\equiv\text{CH} \\ \\ \text{CH}_3 \end{array}$
I-593		H	$\begin{array}{c} \text{CH}_3 \\ \\ -\text{C}-\text{C}\equiv\text{CH} \\ \\ \text{CH}_3 \end{array}$

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Table 1 (Continuation)

Example R No.	R ¹	R ²
I-594	-CH ₃	 CH ₃ -CH-C≡CH
I-595	H	 -C6H5-CH=CH-CO-C(CH3)3
I-596	-CH ₃	 CH ₃ -CH-C≡CH
I-597	H	 CH ₃ -C-C≡CH CH ₃
I-598	-CH ₃	 CH ₃ -CH-C≡CH
I-599	-CH ₃	 CH ₃ -CH-C≡CH
I-600	-CH ₂ -CH=CH ₂	 -CH ₂ -CH=CH ₂
I-601	H	 CH ₃ -C-C≡CH CH ₃
I-602	CH ₃	 CH ₃ -CH-C≡CH
I-603	-CH ₂ -CH=CH ₂	 -CH ₂ -CH=CH ₂
I-604	H	 CH ₃ -C-C≡CH CH ₃
I-605	-CH ₃	 CH ₃ -CH-C≡CH
I-606	-CH ₃	 CH ₃ -CH-C≡CH

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Table 1 (Continuation)

Example No.	R	R ¹	R ²
I-607		-CH ₂ -CH=CH ₂	-CH ₂ -CH=CH ₂
I-608		-CH ₃	
I-609		-CH ₃	
I-610		-CH ₃	
I-611		-CH ₂ -CH=CH ₂	-CH ₂ -CH=CH ₂
I-612		H	
I-613		-CH ₂ -CH=CH ₂	-CH ₂ -CH=CH ₂
I-614		H	
I-615		-CH ₃	
I-616		-CH ₂ -CH=CH ₂	-CH ₂ -CH=CH ₂
I-617		H	
I-618		-CH ₂ -CH=CH ₂	-CH ₂ -CH=CH ₂

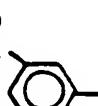
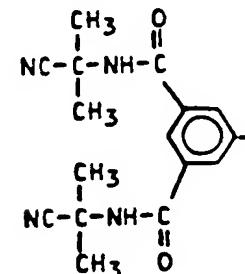
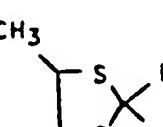
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Table 1 (Continuation)

Example No.	R	R ¹	R ²
I-619		H	 -C-C≡CH CH3
I-620		H	 -C-C≡CH CH3
I-621		H	 -C-C≡CH CH3
I-622		-CH3	 -CH-C≡CH CH3
I-623		-CH3	 -CH-C≡CH
I-624		-CH2-CH=CH2	-CH2-CH=CH2
I-625		-CH2-CH=CH2	-CH2-CH=CH2
I-626		H	 -C-C≡CH CH3

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Table 1 (Continuation)

Example No.	R	R ¹	R ² :
I-627	$(CH_2=CHCH_2)_2N-C(=O)-$ 	-CH ₂ -CH=CH ₂	-CH ₂ -CH=CH ₂
I-628		H	CH_3 -C-CN CH ₃
I-629		-CH ₂ -CH=CH ₂	-CH ₂ -CH=CH ₂
I-630		H	CH_3 -C-C≡CH CH ₃
I-631		-CH ₃	CH_3 -CH-C≡CH
I-632		-CH ₂ -CH=CH ₂	-CH ₂ -CH=CH ₂
I-633		H	CH_3 -C-C≡CH CH ₃
I-634		-CH ₃	CH_3 -CH-C≡CH
I-635		-CH ₂ -CH=CH ₂	-CH ₂ -CH=CH ₂

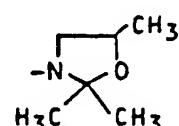
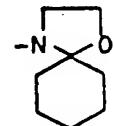
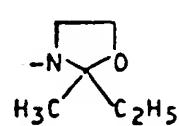
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Table 1 (Continuation)

Example No.	R	R ¹	R ²	or	-N ^{R¹} R ²
I-636		H			
I-637		-CH ₂ -CH=CH ₂	-CH ₂ -CH=CH ₂		
I-638	Cl-CH ₂ CH ₂ O-	-CH ₂ -CH=CH ₂	-CH ₂ -CH=CH ₂		
I-639		-CH ₂ -CH=CH ₂	-CH ₂ -CH=CH ₂		
I-640	CH ₃ -C≡C-CH ₂ O-	-CH ₂ -CH=CH ₂	-CH ₂ -CH=CH ₂		
I-641		-CH ₂ -CH=CH ₂	-CH ₂ -CH=CH ₂		
I-642		-CH ₃			
I-643		-CH ₂ -CH=CH ₂	-CH ₂ -CH=CH ₂		
I-644		H			
I-645		-CH ₃			
I-646		-CH ₂ -CH=CH ₂	-CH ₂ -CH=CH ₂		

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Table 1 (Continuation)

Example No.	R	R ¹	R ²	or	
I-647	Cl ₂ CH-				
I-648	Cl ₂ CH-				
I-649	Cl ₂ CH-	-CH ₂ -CH=CH ₂		-CH ₂ -CO-NH-CH ₂ -CH=CH ₂	
I-650	Cl ₂ CH-				

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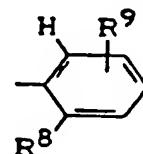
The amides of the formula (I) which can be used according to the invention are known (compare, for example, DE-OS (German Published Specification) 2,828,265, DE-OS (German Published Specification) 3,228,007, DE-OS 5 (German Published Specification) 2,218,097, DE-OS (German Published Specification) 2,350,547, DE-OS (German Published Specification) 3,426,541, DE-OS (German Published Specification) 2,905,560 and U.S. Patent Specification 4,531,970).

10 As already mentioned, the amides of the formula (I) which can be used according to the invention are suitable for improving the crop plant tolerance of herbicidally active sulphonyliso(thio)urea derivatives of the formula (II).

15 Formula (II) provides a general definition of the herbicidally active sulphonylurea derivatives which can be used according to the invention.

Herbicidal sulphonyliso(thio)urea derivatives of the formula (II) which can preferably be used are those 20 in which

R³ represents the radical



wherein

R⁸ and R⁹ are identical or different and represent hydrogen, halogen [such as, in particular, fluorine, chlorine, bromine and/or iodine], cyano, nitro or C₁-C₆-alkyl [which is optionally substituted by fluorine, chlorine, bromine, cyano, carboxyl, C₁-C₄-alkoxycarbonyl, C₁-C₄-alkyl-amino-carbonyl, di-(C₁-C₄-alkyl)-amino-carbonyl, hydroxyl, C₁-C₄-alkoxy, formyloxy, C₁-C₄-alkyl-carbonyloxy, C₁-C₄-alkoxy-carbonyloxy, C₁-C₄-alkylamino-carbonyloxy, C₁-C₄-alkylthio, C₁-C₄-

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alkylsulphinyl, C₁-C₄-alkylsulphonyl, di-(C₁-C₄-alkyl)-aminosulphonyl, C₃-C₆-cycloalkyl or phenyl], or represent C₂-C₆-alkenyl [which is optionally substituted by fluorine, chlorine, bromine, cyano, C₁-C₄-alkoxycarbonyl, carboxyl or phenyl], or represent C₂-C₆-alkinyl [which is optionally substituted by fluorine, chlorine, bromine, cyano, C₁-C₄-alkoxy-carbonyl, carboxyl or phenyl], or represent C₁-C₄-alkoxy [which is optionally substituted by fluorine, chlorine, bromine, cyano, carboxyl, C₁-C₄-alkoxyimino-C₁-C₄-alkyl, C₁-C₄-alkoxy-carbonyl, C₁-C₄-alkoxy, C₁-C₄-alkylthio, C₁-C₄-alkylsulphinyl or C₁-C₄-alkylsulphonyl], or represent C₁-C₄-alkylthio [which is optionally substituted by fluorine, chlorine, bromine, cyano, carboxyl, C₁-C₄-alkoxycarbonyl, C₁-C₄-alkylthio, C₁-C₄-alkylsulphinyl or C₁-C₄-alkylsulphonyl], or represent C₃-C₆-alkenyloxy [which is optionally substituted by fluorine, chlorine, bromine, cyano or C₁-C₄-alkoxy-carbonyl], or represent C₂-C₆-alkenylthio [which is optionally substituted by fluorine, chlorine, bromine, cyano, nitro, C₁-C₃-alkylthio or C₁-C₄-alkoxycarbonyl], or represent C₃-C₆-alkinyloxy or C₃-C₆-alkinylthio, or represent the radical -S(O)_p-R¹⁰,

wherein

p represents the number 1 or 2 and

R¹⁰ represents C₁-C₄-alkyl [which is optionally substituted by fluorine, chlorine, bromine, cyano or C₁-C₄-alkoxy-carbonyl], C₃-C₆-alkenyl, C₃-C₆-alkinyl, C₁-C₄-alkoxy, C₁-C₄-alkoxy-amino, C₁-C₄-alkoxy-C₁-C₄-alkylamino, C₁-C₄-alkylamino or di(C₁-C₄-alkyl)-amino,

or furthermore

R⁸ and R⁹ represent phenyl or phenoxy, or represent

C₁-C₄-alkylcarbonylamino, C₁-C₄-alkoxycarbonyl-amino, C₁-C₄-alkylamino-carbonylamino, di-(C₁-C₄-alkyl)-amino-carbonylamino, or represent the radical -CO-R¹¹,

5 wherein

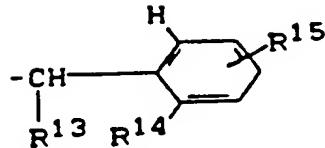
R¹¹ represents C₁-C₆-alkyl, C₁-C₆-alkoxy, C₁-C₄-alkoxyimino-C₁-C₄-alkoxy, C₃-C₆-cycloalkoxy, C₃-C₆-alkenyloxy, C₁-C₄-alkylthio, C₁-C₄-alkylamino, C₁-C₄-alkoxyamino, C₁-C₄-alkoxy-C₁-C₄-alkyl-amino or di-(C₁-C₄-alkyl)amino [which are optionally substituted by fluorine and/or chlorine], or furthermore R⁸ and R⁹ represent C₁-C₄-alkylsulphonyl-C₁-C₄-alkylsulphonyloxy, di-(C₁-C₄-alkyl)-aminosulphonylamino or represent the radical -CH=N-R¹²,

wherein

R¹² represents C₁-C₆-alkyl which is optionally substituted by fluorine, chlorine, cyano, carboxyl, C₁-C₄-alkoxycarbonyl, C₁-C₄-alkylthio, C₁-C₄-alkylsulphanyl or C₁-C₄-alkylsulphonyl, or represents benzyl which is optionally substituted by fluorine or chlorine, or represents C₃-C₆-alkenyl or C₃-C₆-alkinyl which is optionally substituted by fluorine or chlorine, or represents phenyl which is optionally substituted by fluorine, chlorine, bromine, C₁-C₄-alkyl, C₁-C₄-alkoxy, trifluoromethyl, trifluoromethoxy or trifluoromethylthio, or represents C₁-C₆-alkoxy, C₃-C₆-alkenoxy, C₃-C₆-alkinoxy or benzyloxy which is optionally substituted by fluorine and/or chlorine, or represents amino, C₁-C₄-alkylamino, di-(C₁-C₄-alkyl)amino, phenylamino, C₁-C₄-alkyl-carbonyl-amino, C₁-C₄-alkoxy-carbonylamino, or C₁-C₄-alkyl-sulphonylamino, or represents phenylsulphonylamino which is optionally substitu-

ted by fluorine, chlorine, bromine or methyl;
and wherein, furthermore,

R³ represents the radical

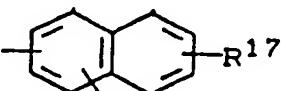


wherein

R¹³ represents hydrogen or C₁-C₄-alkyl and
R¹⁴ and R¹⁵ are identical or different and represent
hydrogen, fluorine, chlorine, bromine, nitro,
cyano, C₁-C₄-alkyl [which is optionally sub-
stituted by fluorine and/or chlorine], C₁-C₄-
alkoxy [which is optionally substituted by fluori-
ne and/or chlorine], carboxyl, C₁-C₄-alkoxy-
carbonyl, C₁-C₄-alkylsulphonyl or di-(C₁-C₄-
alkyl)-aminosulphonyl;

or wherein, furthermore,

R³ represents the radical

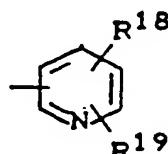


wherein

R¹⁶ and R¹⁷ are identical or different and represent
hydrogen, fluorine, chlorine, bromine, nitro,
cyano, C₁-C₄-alkyl [which is optionally sub-
stituted by fluorine and/or chlorine] or C₁-C₄-
alkoxy [which is optionally substituted by
fluorine and/or chlorine];

or wherein, furthermore,

R³ represents the radical



25 wherein

R¹⁸ and R¹⁹ are identical or different and represent
hydrogen, fluorine, chlorine, bromine, nitro,
cyano, C₁-C₄-alkyl [which is optionally sub-

stituted by fluorine and/or chlorine] or C₁-C₄-alkoxy [which is optionally substituted by fluorine and/or chlorine], or represent C₁-C₄-alkylthio, C₁-C₄-alkylsulphanyl or C₁-C₄-alkylsulphonyl [which are optionally substituted by fluorine and/or chlorine], or represent di-(C₁-C₄-alkyl)-amino-sulphonyl or C₁-C₄-alkoxy-carbonyl;
or wherein, furthermore,

R³ represents the radical R²⁰--R²¹

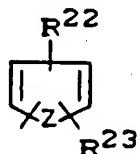
10 wherein

R²⁰ and R²¹ are identical or different and represent hydrogen, fluorine, chlorine, bromine, C₁-C₄-alkyl [which is optionally substituted by fluorine and/or bromine] or C₁-C₄-alkoxy [which is optionally substituted by fluorine and/or chlorine], or represent C₁-C₄-alkylthio, C₁-C₄-alkylsulphanyl or C₁-C₄-alkylsulphonyl [which are optionally substituted by fluorine and/or chlorine], or represent di-(C₁-C₄-alkyl)-amino-sulphonyl;

20

or wherein, furthermore,

R³ represents the radical



wherein

R²² and R²³ are identical or different and represent hydrogen, fluorine, chlorine, bromine, cyano, nitro, C₁-C₄-alkyl [which is optionally substituted by fluorine and/or chlorine], C₁-C₄-alkoxy [which is optionally substituted by fluorine and/or chlorine], C₁-C₄-alkylthio, C₁-C₄-alkyl-sulphanyl or C₁-C₄-alkylsulphonyl [which is option-

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ally substituted by fluorine and/or chlorine], di-(C₁-C₄-alkyl)-amino-sulphonyl or C₁-C₄-alkoxy-carbonyl and

Z represents oxygen, sulphur or the grouping N-Z¹,

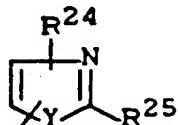
5 wherein

Z¹ represents hydrogen, C₁-C₄-alkyl [which is optionally substituted by fluorine, chlorine, bromine or cyano], C₃-C₆-cycloalkyl, benzyl, phenyl [which is optionally substituted by fluorine, chlorine, bromine or nitro], C₁-C₄-alkyl-carbonyl, C₁-C₄-alkoxy-carbonyl or di-(C₁-C₄-alkyl)-amino-carbonyl;

10

or wherein, furthermore,

R³ represents the radical



15 wherein

R²⁴ represents hydrogen, C₁-C₅-alkyl or halogen,

R²⁵ represents hydrogen or C₁-C₅-alkyl and

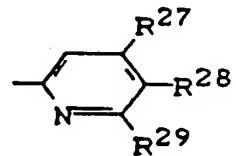
Y represents sulphur or the grouping N-R²⁶,

wherein

20 R²⁶ represents hydrogen or C₁-C₅-alkyl;

and wherein, furthermore,

R⁴ represents the radical



wherein

25 R²⁷ and R²⁹ are identical or different and represent hydrogen, fluorine, chlorine, bromine, C₁-C₄-alkyl [which is optionally substituted by fluorine and/or chlorine] or C₁-C₄-alkoxy [which is optionally substituted by fluorine and/or chlorine], with the proviso that at least one of the radicals

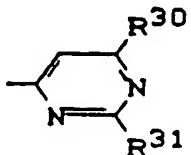
30 R²⁷ and R²⁹ is other than hydrogen, and

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R^{28} represents hydrogen, fluorine, chlorine, bromine, cyano or C₁-C₄-alkyl [which is optionally substituted by fluorine and/or chlorine]; or wherein, furthermore,

5

R^4 represents the radical



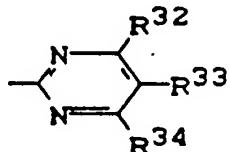
wherein

R^{30} and R^{31} are identical or different and represent hydrogen, fluorine, chlorine, bromine, C₁-C₄-alkyl [which is optionally substituted by fluorine and/or chlorine], C₁-C₄-alkoxy [which is optionally substituted by fluorine and/or chlorine], C₁-C₄-alkylamino or di-(C₁-C₄-alkyl)-amino, with the proviso that at least one of the radicals R^{30} and R^{31} is other than hydrogen;

10

15 or wherein, furthermore,

R^4 represents the radical



wherein

R^{32} represents hydrogen, fluorine, chlorine, bromine, hydroxyl or C₁-C₄-alkyl [which is optionally substituted by fluorine and/or chlorine] or C₁-C₄-alkoxy [which is optionally substituted by fluorine and/or chlorine],

20

R^{33} represents hydrogen, fluorine, chlorine, bromine, C₁-C₄-alkyl [which is optionally substituted by fluorine and/or chlorine], cyano, formyl, C₁-C₄-alkyl-carbonyl or C₁-C₄-alkoxy-carbonyl and

25

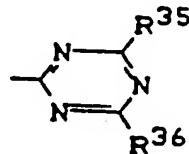
R^{34} represents hydrogen, fluorine, chlorine,

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bromine, hydroxyl, C₁-C₄-alkyl [which is optionally substituted by fluorine and/or chlorine], C₁-C₄-alkoxy [which is optionally substituted by fluorine and/or chlorine], amino, C₁-C₄-alkyl-amino or di-(C₁-C₄-alkyl)-amino, or R³³ and R³⁴ together represent C₃-C₄-alkane-diyl;

or wherein, furthermore,

R⁴ represents the radical

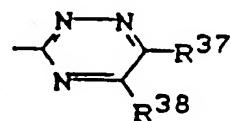


10 wherein

R³⁵ and R³⁶ are identical or different and represent fluorine, chlorine, bromine, hydroxyl, C₁-C₄-alkyl [which is optionally substituted by fluorine and/or chlorine], C₃-C₅-cycloalkyl, C₁-C₄-alkoxy [which is optionally substituted by fluorine and/or chlorine] or C₁-C₄-alkylthio, or represent C₁-C₄-alkyl-amino or di-(C₁-C₄-alkyl)-amino;

and wherein, furthermore,

20 R⁴ represents the radical



wherein

R³⁷ and R³⁸ are identical or different and represent hydrogen, methyl or methoxy;

and wherein, furthermore,

25 R⁵ represents C₁-C₁₂-alkyl [which is optionally substituted by fluorine, chlorine, cyano, C₁-C₄-alkoxy, C₁-C₄-alkylthio, C₁-C₄-alkylsulphanyl, C₁-C₄-alkylsulphonyl, C₁-C₄-alkyl-carbonyl, C₁-C₄-alkoxy-carbonyl, C₁-C₄-alkylaminocarbonyl or di-(C₁-C₄-alkyl)-aminocarbonyl], or repres-

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ents C₃-C₆-alkenyl, C₃-C₆-alkinyl, C₃-C₆-cycloalkyl, C₃-C₆-cycloalkyl-C₁-C₂-alkyl or phenyl-C₁-C₂-alkyl [which is optionally substituted in the phenyl part by fluorine, chlorine, nitro, cyano, C₁-C₄-alkyl, C₁-C₄-alkoxy or C₁-C₄-alkoxy-carbonyl],

5 or wherein, furthermore,

R⁵ represents a phenyl radical which is optionally substituted by one or more radicals from the series comprising halogen [such as, in particular, fluorine, chlorine, bromine and iodine], cyano, nitro, hydroxy, carboxy, C₁-C₆-alkyl [which is optionally substituted by fluorine, chlorine, bromine, nitro, cyano, hydroxyl, carboxyl, C₁-C₄-alkoxy-carbonyl, C₁-C₄-alkoxy, C₁-C₄-alkylthio or phenyl], C₃-C₆-cycloalkyl, C₁-C₄-alkoxy [which is optionally substituted by fluorine, chlorine, bromine, cyano, carboxy, C₁-C₄-alkoxy, C₁-C₄-alkylthio or C₁-C₄-alkoxy-carbonyl],

10 C₁-C₄-alkylthio [which is optionally substituted by fluorine, chlorine, bromine, cyano, carboxyl, or C₁-C₄-alkoxy-carbonyl], amino, C₁-C₄-alkyl-amino and di-(C₁-C₄-alkyl)-amino [which are optionally substituted by fluorine, chlorine, bromine, cyano, carboxyl, C₁-C₄-alkoxy or C₁-C₄-alkoxy-carbonyl], C₁-C₄-alkyl-carbonylamino, C₁-C₄-alkoxy-carbonylamino, (di)-C₁-C₄-alkyl-amino-carbonyl-amino, formyl, C₁-C₄-alkyl-carbonyl, benzoyl, C₁-C₄-alkoxy-carbonyl, phenoxy-carbonyl, benzyloxycarbonyl, phenyl [which is optionally substituted by fluorine, chlorine, bromine, cyano, nitro, hydroxyl or methyl], phenoxy, phenylthio, phenylsulphonyl, phenylamino and phenylazo [which are optionally substituted by fluorine, chlorine, bromine, cyano, nitro, methyl and/or trifluoromethyl], pyridoxy and pyrimidoxy

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[which are optionally substituted by fluorine, chlorine, bromine, cyano, nitro, methyl and/or trifluoromethyl], C₁-C₄-alkyl-carbonyloxy, C₁-C₄-alkoxy-carbonyloxy, C₁-C₄-alkyl-amino-carbonyloxy, or which is optionally fused by an alkylene chain [which is optionally branched and/or interrupted by one or more oxygen atoms] or a benzo radical [which is optionally substituted by fluorine, chlorine, bromine, cyano, nitro, methyl and/or trifluoromethyl];

10 or wherein, furthermore,

15 R⁵ represents a five- or six-membered heteroaromatic ring which contains 1 to 3 nitrogen atoms and/or an oxygen or sulphur atom and which is optionally benzo-fused and/or substituted by fluorine, chlorine, bromine, cyano, nitro, C₁-C₃-alkyl or C₁-C₃-alkoxy [the latter being optionally substituted by fluorine and/or chlorine];

20 and wherein, furthermore,

X represents oxygen or sulphur and

M represents hydrogen or one equivalent of sodium, potassium, magnesium, calcium, aluminium, manganese, iron, cobalt or nickel.

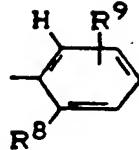
25 The adducts of compounds of the formula (II) - as defined above - with hydrogen halide acids, such as hydrogen fluoride, hydrogen chloride, hydrogen bromide or hydrogen iodide, with sulphuric acid, with alkanesulphonic acids which have 1 to 4 carbon atoms and are optionally substituted by fluorine and/or chlorine or benzene- or naphthalenesulphonic acids which are optionally substituted by fluorine, chlorine, bromine or methyl can furthermore preferably be used.

30 35 the formula (II) which can be particularly preferably used are those

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in which

(A) R^3 represents the radical



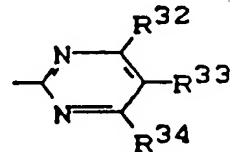
wherein

5 R^8 represents fluorine, chlorine, bromine, methyl, trifluoromethyl, methoxy, difluoromethoxy, trifluoromethoxy, C_1-C_3 -alkylthio, difluoromethylthio, trifluoromethylthio, C_1-C_3 -alkylsulphanyl, C_1-C_3 -alkylsulphonyl, dimethylaminosulphonyl, diethylaminosulphonyl, N -methoxy- N -methylaminosulphonyl, phenyl, phenoxy, C_1-C_3 -alkoxy-carbonyl or C_1-C_3 -alkyl-aminocarbonyl and

10 R^9 represents hydrogen;

and wherein, furthermore,

R^4 represents the radical



15 wherein

R^{32} represents hydrogen, fluorine, chlorine, bromine, hydroxyl, C_1-C_3 -alkyl, C_1-C_3 -alkoxy or difluoromethoxy,

20 R^{33} represents hydrogen, chlorine, bromine or methyl and

R^{34} represents C_1-C_3 -alkyl, hydroxy, fluorine, chlorine, bromine or C_1-C_3 -alkoxy;

and wherein, furthermore,

25 R^5 represents C_1-C_8 -alkyl [which is optionally substituted by fluorine, chlorine, cyano, C_1-C_2 -alkoxy or C_1-C_2 -alkoxy-carbonyl], or represents C_3-C_4 -alkenyl, C_3-C_4 -alkynyl or benzyl [which is optionally substituted in the phenyl part by fluorine, chlorine, nitro, cyano, methyl, methoxy or C_1-C_2 -alkoxycarbonyl], or

R⁵ represents a phenyl radical, which is optionally substituted by one or two radicals from the series comprising fluorine, chlorine, bromine, iodine, cyano, nitro, hydroxyl, carboxyl, C₁-C₃-alkoxy-carbonyl, C₁-C₄-alkyl, trifluoromethyl, hydroxymethyl, methoxycarbonylmethyl, phenyl-C₁-C₃-alkyl, cyclohexyl, C₁-C₃-alkoxy, trifluoromethoxy, C₁-C₃-alkylthio, trifluoromethylthio, dimethylamino, amino, acetylarnino, methylarnino-carbonyl, formyl, acetyl, benzoyl, phenyl, hydroxyphenyl, phenoxy [which is optionally substituted by chlorine and/or trifluoromethyl], phenylarnino, phenylazo and pyridoxy [which is optionally substituted by chlorine and/or trifluoromethyl], or which is optionally benzo-fused;

and wherein, furthermore,

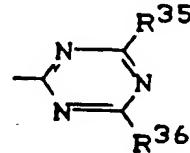
X represents oxygen or sulphur and

M represents hydrogen or one equivalent of sodium, potassium or calcium;

or wherein, furthermore,

(B) R³, R⁵, X and M have the meaning given above under (A) and

R⁴ represents the radical



wherein

R³⁵ represents fluorine, chlorine, cyclopropyl, C₁-C₂-alkyl, C₁-C₂-alkoxy or C₁-C₂-alkylthio and

R³⁶ represents fluorine, chlorine, cyclopropyl, C₁-C₂-alkyl, C₁-C₂-alkoxy, C₁-C₂-alkyl-amino or di-(C₁-C₂-alkyl)-amino.

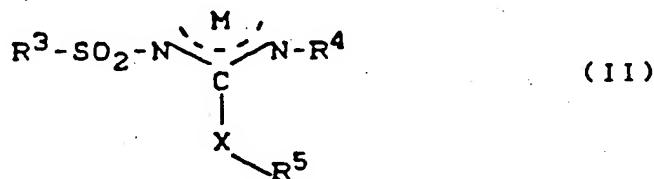
Adducts of compounds of the formula (I) - as defined above - with hydrogen halide acids, such as

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hydrogen chloride, hydrogen bromide and hydrogen iodide,
with sulphuric acid, with alkanesulphonic acids which have
1 to 4 carbon atoms and are optionally substituted by
fluorine and/or chlorine or with benzene- or naphthalene-
5 sulphonic acids which are optionally substituted by
fluorine, chlorine, bromine or methyl can furthermore be
particularly preferably used.

The following compounds of the general formula
(II) may be mentioned specifically:

10



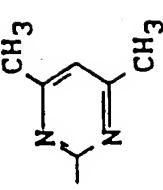
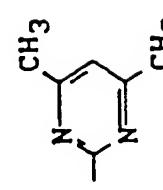
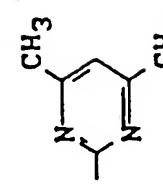
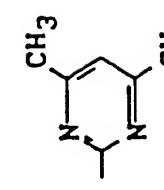
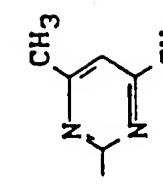
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Table 2

Example No.	R ³	R ⁴	R ⁵	X	H
II-1	COOCH ₃ 	 CH ₃ CH ₃	-CH ₃	0	H
II-2	COOCH ₃ 	 CH ₃ CH ₃	-C ₂ H ₅	0	H
II-3	COOCH ₃ 	 CH ₃ CH ₃	-CH ₂ CF ₃	0	H
II-4	COOCH ₃ 	 CH ₃ CH ₃	-CH ₂ CH ₂ Cl	0	H
II-5	COOCH ₃ 	 CH ₃ CH ₃	-C ₃ H ₇ -i	0	H

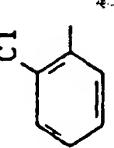
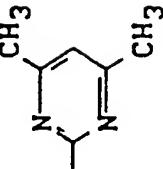
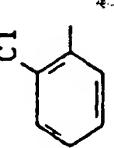
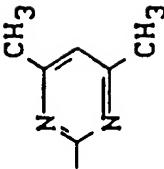
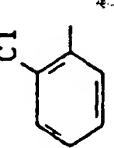
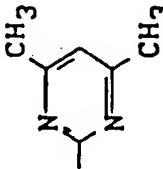
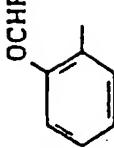
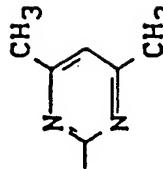
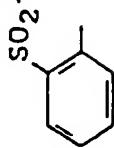
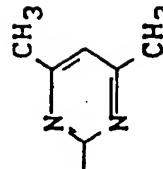
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Table 2 - Continuation

Example No.	R ³	R ⁴	R ⁵	X	H
II-6	CO-NHOCH ₃		-CH ₃	0	H
II-7	CO-NHOC ₈ H _{17-n}		-CH ₃	0	H
II-8	C1		-CH ₃	0	H
II-9	C1		-C ₂ H ₅	0	H
II-10	C1		-CH ₂ CH ₂ C1	0	H

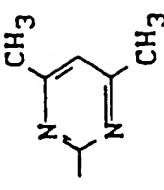
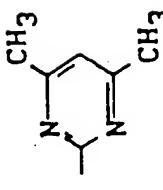
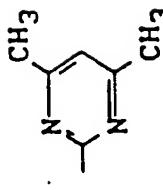
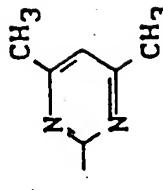
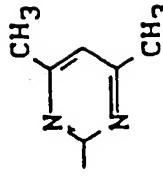
7-A-24-460

Table 2 - Continuation

Example No.	R ³	R ⁴	R ⁵	X	M
III-11	C1 		-C ₃ H ₇ -i	0	H
III-12	C1 		-CH ₂ COOC ₂ H ₅	0	H
III-13	C1 		CH ₃ -CH- -CH ₂ COOC ₂ H ₅	0	H
III-14			-C ₂ H ₅	0	H
III-15			-CH ₃	0	H

~~10 A 24 160~~

Table 2 - Continuation

Example No.	R ³	R ⁴	R ⁵	X	M
III-16	SO ₂ -N(C ₂ H ₅) ₂		-CH ₃	0	H
III-17	SO ₂ -N(C ₂ H ₅) ₂		-C ₂ H ₅	0	H
III-18	SO ₂ NHOCH ₃		-C ₂ H ₅	0	H
III-19	SO ₂ NHOCH ₃		-CH ₃	0	H
III-20	SO ₂ -NHOC ₂ H ₅		-C ₂ H ₅	0	H

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Table 2 - Continuation

Example No.	R ³	R ⁴	R ⁵	X	H
II-21	<chem>C=Cc1ccccc1</chem>	<chem>CC1=CC=C(C=C1)N(C)C</chem>	-C ₂ H ₅	O	H
II-22	<chem>C=Cc1ccccc1</chem>	<chem>CC1=CC=C(C=C1)N(C)C</chem>	-C ₂ H ₅	O	H
II-23	<chem>CC(=O)c1ccccc1</chem>	<chem>CC1=CC=C(C=C1)N(C)C</chem>	-C ₂ H ₅	O	H
II-24	<chem>CC(=O)c1ccccc1</chem>	<chem>CC1=CC=C(C=C1)N(C)C</chem>	-C ₃ H ₇ -i	O	H
II-25	<chem>Cc1ccccc1</chem>	<chem>CC1=CC=C(C=C1)N(C)C</chem>	-CH ₃	OCH ₃	H

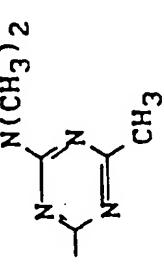
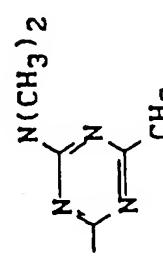
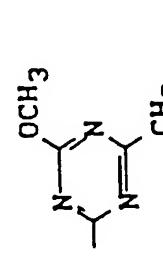
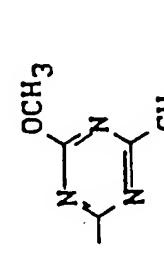
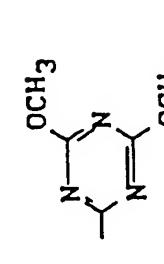
7-A-24-460

Table 2 - Continuation

Example No.	R ₃	R ₄	R ₅	X	M
II-26	C1 	 OCH ₃	-C ₂ H ₅	O	H
II-27	C1 	 CH ₃	-CH ₃	O	H
II-28	C1 	 OCH ₃	-CH ₃	O	H
II-29	C1 	 CH ₃	-CH ₃	O	H
II-30		 OC ₂ H ₅	-CH ₃	O	H

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Table 2 - Continuation

Example No.	R ³	R ⁴	R ⁵	X	M
II-31	SO ₂ -NHOC ₃ H ₇ -i		-C ₂ H ₅	0	H
II-32	SO ₂ -NHOC ₃ H ₇ -i		-C ₂ H ₅	0	K
II-33	Br		-CH ₃	0	H
II-34	CF ₃		-C ₂ H ₅	0	H
II-35	SO ₂ -N(CH ₃) ₂		-CH ₃	0	H

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Table 2 - Continuation

Example No.	R ³	R ⁴	R ⁵	X	H
II-36	SO ₂ -CH ₃		-C ₃ H ₇ -i	0	H
II-37	SC ₆ H ₅		-CH ₃	0	H
II-38	COOC ₂ H ₅		-CH ₃	0	H
II-39	COOC ₂ H ₅		-CH ₃	0	H
II-40	C1		-C ₃ H ₇ -i	0	H

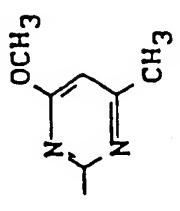
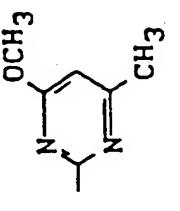
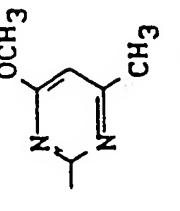
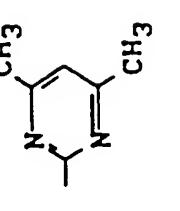
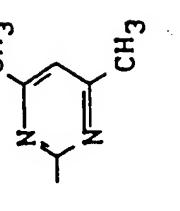
7-A-24-460

Table 2 - Continuation

Example No.	R ³	R ⁴	R ⁵	X	M
II-41	Br 	OCH ₃ 	-CH ₃	O	H
II-42	CF ₃ 	OCH ₃ 	-CH ₃	O	H
II-43	SCH ₃ 	OCH ₃ 	-CH ₃	O	H
II-44	SO ₂ -CH ₃ 	OCH ₃ 	-CH ₃	O	H
II-45	CF ₃ 	OCH ₃ 	-C ₃ H ₇ -i	O	H

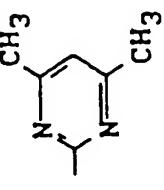
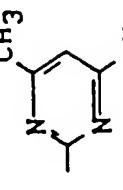
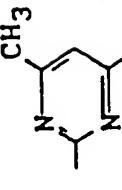
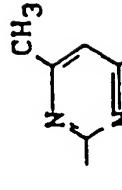
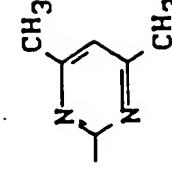
~~16A 24 460~~

Table 2 - Continuation

Example No.	R ³	R ⁴	R ⁵	X	M
II-46	COOCH ₃		-CH ₂ COOCH ₃	O	H
II-47	COOCH ₃		-CH ₂ CH=CH ₂	O	H
II-48	COOCH ₃		-CH ₂ CH ₂ OCH ₃	O	H
II-49	C1		-CH ₃	S	H
II-50	C1		-CH ₂ CH ₂ OH	S	H

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Table 2 - continuation

Example No.	R ³	R ⁴	R ⁵	X	H
II-51	C1		-CH ₂ COOCH ₃	S	H
II-52	C1		-CH ₂ CH ₂ OCH ₃	O	H
II-53	OCHF ₂		-CH ₂ -C ₆ H ₄	S	H
II-54	OCHF ₂		-CH ₂ -C ₆ H ₄ -F	S	H
II-55	OCF ₃		-CH ₃	S	H

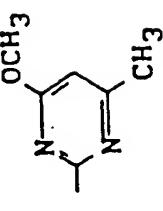
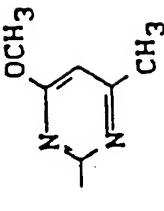
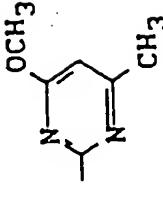
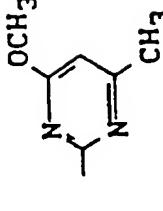
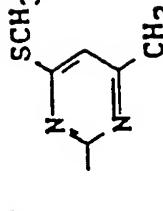
~~50-A-24-468~~

Table 2 - Continuation

Example No.	R ³	R ⁴	R ⁵	X	H
II-56	SO ₂ -NHCOCH ₃		-CH ₃	S	H
II-57	Cl		-CH ₃	S	H
II-58	Cl		-CH ₃	S	H
II-59	Cl		-CH ₃	S	H
II-60	SO ₂ -NHCOCH ₃		-CH ₃	S	H

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Table 2 - Continuation

Example No.	R ³	R ⁴	R ⁵	X	M
II-61	OCF ₃		-CH ₃	S	H
II-62	OCF ₃		-C ₂ H ₅	S	H
II-63	SCH ₃		-CH ₃	S	H
II-64	CH ₃		-CH ₃	S	H
II-65	OCF ₃		-CH ₃	S	H

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Table 2 - Continuation

Example No.	R ³	R ⁴	R ⁵	X	H
II-66	C1 	 OH CH ₃	-CH ₃	S	H
II-67		 OCF ₃ CH ₃	-CH ₃	S	H
II-68		 OCH ₃ CH ₃	-CH ₃	S	H
II-69	C1 	 OCH ₃ OCH ₃	-CH ₃	S	H
II-70		 SO ₂ -NHOCH ₃ CH ₃	-CH ₃	S	H

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Table 2 - Continuation

Example No.	R ³	R ⁴	R ⁵	X	H
II-71	OCF ₃	OCH ₃	-CH ₃	S	H
II-72	C1	CH ₃	-CH ₃	S	H
II-73	C1	SCH ₃	-CH ₃	S	H
II-74	CH ₃	C1	-CH ₃	S	H
II-75	C1	CH ₃	-CH ₃	S	H

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Table 2 - Continuation

Example No.	R ³	R ⁴	R ⁵	X	M
II-76	OCF ₃		-CH ₃	S	H
II-77	CH ₃		-CH ₃	S	H
II-78	Cl		-CH ₃	S	H
II-79	OCF ₃		-CH ₃	S	H
II-80	SCH ₃		-CH ₃	S	H

TA 24-466

Table 2 - Continuation

Example No.	R ³	R ⁴	R ⁵	X	H
II-81	OCF ₃		OC ₂ H ₅	-CH ₃	S H
II-82	SC ₂ H ₇ -i		OCH ₃	-CH ₃	S H
II-83	OCF ₃		SCH ₃	-CH ₃	S H
II-84	OCF ₃		OC ₂ H ₅	-CH ₃	S H
II-85	CH ₃		OC ₂ H ₅	-CH ₃	S H

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Table 2 - Continuation

Example No.	R ³	R ⁴	R ⁵	X	H
II-86	C1 	 OCH ₃	-CH ₃	S	H
II-87	C1 	 OCH ₃	-CH ₃	S	H
II-88		 OCH ₃	-CH ₃	S	H
II-89	CH ₃ 	 OCH ₃	-CH ₃	S	H
II-90	C1 	 N(CH ₃) ₂	-CH ₃	S	H

~~TA 24-460~~

Table 2 - Continuation

Example No.	R ³	R ⁴	R ⁵	X	M
II-91	CH ₃ 	N(CH ₃) ₂ 	-CH ₃	S	H
II-92	Cl 	C ₃ H ₅ -cycl. 	-CH ₃	S	H
II-93	Cl 	CH ₃ C ₃ H ₅ -cycl. 	-CH ₃	S	H
II-94	Cl 	CH ₃ 	-CH ₃	S	H
II-95	CH ₃ 	CH ₃ 	-CH ₃	S	H

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Table 2 - Continuation

Example No.	R ³	R ⁴	R ⁵	X	M
II-96	C1 		-CH ₃	S	H
II-97	C1 		-CH ₃	S	H
II-98	C1 		-CH ₃	S	H
II-99	C1 		-CH ₃	S	H
II-100	C1 		-CH ₃	S	H

~~24 460~~

Table 2 - Continuation

Example No.	R ³	R ⁴	R ⁵	X	H
II-101	C1 		-CH ₃	S	H
II-102	C1 		-CH ₃	S	H
II-103	C1 		-C ₂ H ₅	S	H
II-104				-C ₂ H ₅	S
II-105				-CH ₃	S

~~6-A-24-460~~

Table 2 - Continuation

Example No.	R ³	R ⁴	R ⁵	X	M
II-106.	C1		-CH ₂ OCH ₃	H	S H
II-107	COOCH ₃		-OCH ₃	H	S H
II-108	COOCH ₃		-CH ₂ CH=CH ₂	S	H
II-109	CF ₃		-CH ₃	S	H
II-110	F		-C ₂ H ₅	S	H

~~Ref A 24 460~~

Table 2 - Continuation

Example No.	R ³	R ⁴	R ⁵	X	H
II-111	COOCH ₃ 	OCH ₃ 	-CH ₃	S	H
II-112	COOCH ₃ 	OCH ₃ 	-CH ₂ COOC ₂ H ₅	S	H
II-113	COOCH ₃ 	OCH ₃ 	-CH ₃	S	H
II-114	C1 	OCH ₃ 	-CH ₂ CH ₂ OCH ₃	S	H
II-115	COOCH ₃ 			O	H

1A 24 460

Table 2 - Continuation

Example No.	R ³	R ⁴	R ⁵	X	M
II-116				0	H ₂ SO ₄
II-117				0	Na ⁺
II-118				0	K ⁺
II-119				0	1/2 Ca ⁺⁺
II-120				0	H

~~16 A 24 400~~

Table 2 - Continuation

Example No.	R ³	R ⁴	R ⁵	X	H
II-121	COOCH ₃ 	 CH ₃ CH ₃	 Cl	0	Na ⁺
II-122	COOCH ₃ 	 CH ₃ CH ₃	 N(CH ₃) ₂	0	H
II-123	COOCH ₃ 	 CH ₃ CH ₃	 N(CH ₃) ₂	0	2 C11 ₃ SO ₃ H
II-124	COOCH ₃ 	 CH ₃ CH ₃	 N(CH ₃) ₂	0	Na ⁺
II-125	COOCH ₃ 	 CH ₃	 CHO	0	Na ⁺

~~Te A 24 460~~

Table 2 - Continuation

Example No.	R ³	R ⁴	R ⁵	X	H
II-126	COOCH ₃			0	Na ⁺
II-127	COOCH ₃			0	Na ⁺
II-128	COOCH ₃			0	H
II-129	COOCH ₃			0	Na ⁺
II-130	COOCH ₃			0	H

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Table 2 - Continuation

Example No.	R ³	R ⁴	R ⁵	X	H	X	H
II-131	COOCH ₃ 			Cl	0	Na ⁺	
II-132	COOCH ₃ 			Br	0	H	
II-133	COOCH ₃ 			I	0	H	
II-134	COOCH ₃ 			CH ₃	0	H	
II-135	COOCH ₃ 			CH ₃	0	Na ⁺	

Table 2 - Continuation

Example No.	R ³	R ⁴	R ⁵	X	M
II-136				0	K ⁺
II-137				0	H
II-138				0	Na ⁺
II-139				0	H
II-140				0	Na ⁺

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Table 2 - Continuation

Example No.	R ³	R ⁴	R ⁵	X	H
II-141	COOCH ₃			O	H
II-142	COOCH ₃			O	Na ⁺
II-143	COOCH ₃			O	H
II-144	COOCH ₃			O	Na ⁺
II-145	COOCH ₃			O	Na ⁺

6 0 2 4 1 6 0

Table 2 - Continuation

Example No.	R ³	R ⁴	R ⁵	X	M
II-146	COOCH ₃ 	CH ₃ 	CH ₃ 	O Na ⁺	
II-147	COOCH ₃ 	CH ₃ 	CH ₃ 	O Na ⁺	
II-148	COOCH ₃ 	CH ₃ 	CH ₃ 	O Na ⁺	
II-149	COOCH ₃ 	CH ₃ 	CH ₃ 	O Na ⁺	
II-150	COOCH ₃ 	CH ₃ 		O Na ⁺	

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Table 2 - Continuation

Example No.	R ³	R ⁴	R ⁵	X	M
II-151	COOCH ₃			0	H
II-152	COOCH ₃			0	CH ₃
II-153	COOCH ₃			0	Na ⁺
II-154	COOCH ₃			0	Na ⁺
II-155	COOCH ₃			0	Na ⁺

~~TA 24 460~~

Table 2 - Continuation

Example No.	R ³	R ⁴	R ⁵	X	H
III-156	COOCH ₃		C1	0	H
III-157	COOCH ₃		C1	0	Na ⁺
III-158	COOCH ₃		C1	0	Na ⁺
III-159	COOCH ₃		C1	0	H
III-160	COOCH ₃		C1	0	Na ⁺

~~1 A 24 460~~

Table 2 - Continuation

Example No.	R ³	R ⁴	R ⁵	X	H
II-161	COOCH ₃	CH ₃		0	Na ⁺
II-162	COOCH ₃	CH ₃		Cl	Na ⁺
II-163	COOCH ₃	CH ₃		0	Na ⁺
II-164	COOCH ₃	CH ₃		0	Na ⁺
II-165	COOC ₂ H ₅	CH ₃		0	H

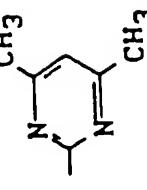
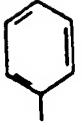
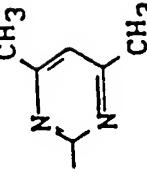
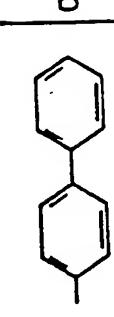
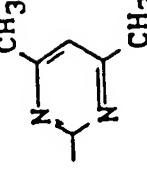
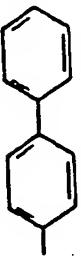
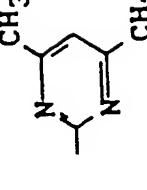
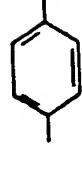
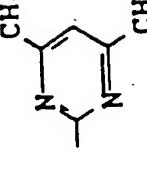
2 4 24 460

Table 2 - Continuation

Example No.	R ₃	R ₄	R ₅	X	M
II-166				O	H
II-167				O	H
II-168				O	H
II-169				O	H
II-170				O	H

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Table 2 - Continuation

Example No.	R ³	R ⁴	R ⁵	X	H
III-171	C1			O	H
III-172	C1			O	H
III-173	C1			O ⁺	Na ⁺
III-174	C1			O	H
III-175	C1			O	Na ⁺

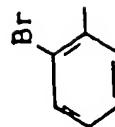
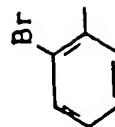
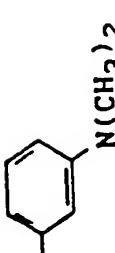
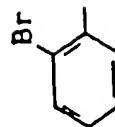
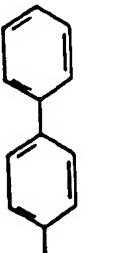
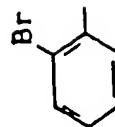
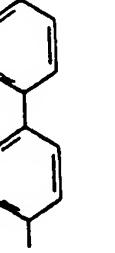
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Table 2 - Continuation

Example No.	R ³	R ⁴	R ⁵	X	H
II-176	Cl		CH ₃	0	Na ⁺
II-177	Cl		CH ₃	0	Na ⁺
II-178	Cl		CH ₃	0	Na ⁺
II-179	Cl		CH ₃	0	Na ⁺
II-180	Cl		CH ₃	0	Na ⁺

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Table 2 - Continuation

Example No.	R ³	R ⁴	R ⁵	X	M
II-181	C1			O	H
II-182	Br			O	H
II-183	Br			O Na ⁺	
II-184	Br			O	H
II-185	Br			O Na ⁺	

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Table 2 - Continuation

Example No.	R ³	R ⁴	R ⁵	X	M
III-186				O	H
III-187				O	K ⁺
III-188				O	K ⁺
III-189				O	H
III-190				O	H

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Table 2 - Continuation

Example No.	R ³	R ⁴	R ⁵	X	H
III-191	OCF ₃			O	H
III-192	OCF ₃			O	Na ⁺
III-193	OCF ₂			O	H
III-194	OCF ₂			O	H
III-195	OCF ₂			O	H

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Table 2 - Continuation

Example No.	R ³	R ⁴	R ⁵	X	H
III-196	CF ₃		—C ₆ H ₄ —C ₄ H ₉ —l..0	O	H
III-197			N(CH ₃) ₂	O	H
III-198			N(CH ₃) ₂	O	H
III-199			N(CH ₃) ₂	O	H
III-200			N(CH ₃) ₂	C ₆ H ₄ —C ₄ H ₉ —l..0	H

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Table 2 - Continuation

Example No.	R ³	R ⁴	R ⁵	X	M
II-201	N(CH ₃) ₂			O	H
II-202	N(CH ₃) ₂			O	Na ⁺
II-203	SO ₂ N(C ₂ H ₅) ₂			O	H
II-204	SO ₂ N(C ₂ H ₅) ₂			O	H
II-205	SO ₂ N(C ₂ H ₅) ₂			O	H
					N(CH ₃) ₂

Table 2 - Continuation

Example No.	R ³	R ⁴	R ⁵	X	M
II-206	<chem>SO2N(C2H5)2</chem>			O	H
II-207	<chem>SO2N(C2H5)2</chem>			O-C ₆ H ₄ -SO ₂ -	H
II-208	<chem>SO2N(C2H5)2</chem>			O	H
II-209	<chem>SO2N(C2H5)2</chem>			O	H
II-210	<chem>SO2N(C2H5)2</chem>			O	H

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Table 2 - Continuation

Example No.	R ³	R ⁴	R ⁵	X	H
II-211				0	H
II-212				0	H
II-213				0	H
II-214				0	H
II-215				0	H

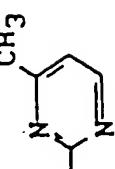
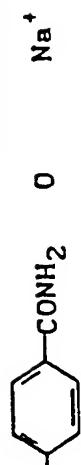
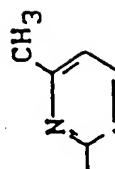
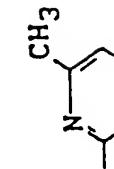
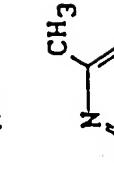
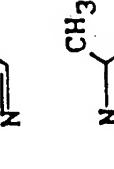
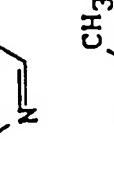
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Table 2 - Continuation

Example No.	R ³	R ⁴	R ⁵	X	H
II-216	COOCH ₃ 	CH ₃ 	Phenyl 	O	H
II-217	COOCH ₃ 	CH ₃ 	Phenyl 	O	H
II-218	COOCH ₃ 	CH ₃ 	Phenyl-C ₃ H ₇ -n 	O	H
II-219	COOCH ₃ 	CH ₃ 	Phenyl-C ₄ H ₉ -l. 	O	H
II-220	COOCH ₃ 	CH ₃ 	Biphenyl 	O	H
II-221	COOCH ₃ 	CH ₃ 	Indole 	O	H

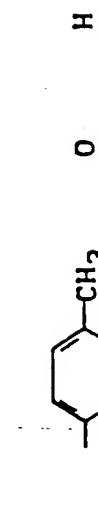
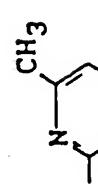
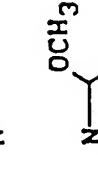
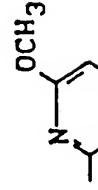
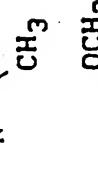
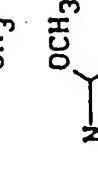
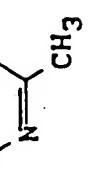
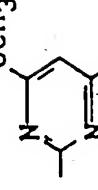
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Table 2 - Continuation

Example No.	R ³	R ⁴	R ⁵	X	M
II-222	COOCH ₃			CONH ₂	0
II-223	COOCH ₃			0	Na ⁺
II-224	COOCH ₃			0	Na ⁺
II-225	COOCH ₃			0	Na ⁺
II-226	COOC ₃ H ₇ -i			0	H
II-227	COOC ₃ H ₇ -i			0	Na ⁺

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Table 2 - Continuation

Example No.	R ³	R ⁴	R ⁵	X	M
II-228	OCF ₃			H	
II-229				O	H
II-230	COOCH ₃			O	H
II-231				O	H
II-232				O	H

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Table 2 - Continuation

Example No.	R ³	R ⁴	R ⁵	X	M
II-233				O	H
II-234				O	H
II-235			O	H	
II-236				O	H
II-237				O	H

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Table 2 - Continuation

Example No.	R ³	R ⁴	R ⁵	X	H
II-238	COOCH ₃	OCH ₃	OCN	O	H
II-239	C1	OCH ₃	OCN	O	H
II-240	OCF ₃	OCH ₃	OCN	O	H
II-241	OCF ₃	OCN	OCN	O	H
II-242	OCF ₃	OCN	SCN	O	H

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Table 2 - Continuation

Example No.	R ³	R ⁴	R ⁵	X	M
II-243	OCHF ₂			0	H
II-244	OCHF ₂			0	H
II-245	SO ₂ N(CH ₃) ₂			0	H
II-246	SO ₂ N(CH ₃) ₂			0	H
II-247	SO ₂ N(CH ₃) ₂			0	H

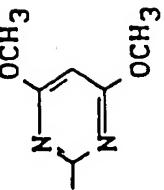
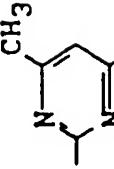
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Table 2 - Continuation

Example No.	R ³	R ⁴	R ⁵	X	M
II-248	<chem>SO2N(CH3)2</chem>	<chem>c1ccccc1C(=O)N(C)c2ccccc2</chem>	<chem>c1ccccc1C(=O)N(C)c2ccccc2</chem>	O	Na^+
II-249	<chem>SO2N(CH3)2</chem>	<chem>c1ccccc1C(=O)N(C)c2ccccc2</chem>	<chem>c1ccccc1C(=O)N(C)c2ccccc2</chem>	OCH ₃	H
II-250	<chem>SO2N(CH3)2</chem>	<chem>c1ccccc1C(=O)N(C)c2ccccc2</chem>	<chem>c1ccccc1C(=O)N(C)c2ccccc2</chem>	OCH ₃	H
II-251	<chem>SO2N(CH3)2</chem>	<chem>c1ccccc1C(=O)N(C)c2ccccc2</chem>	<chem>c1ccccc1C(=O)N(C)c2ccccc2</chem>	OCH ₃	H
II-252	<chem>SO2N(CH3)2</chem>	<chem>c1ccccc1C(=O)N(C)c2ccccc2</chem>	<chem>c1ccccc1C(=O)N(C)c2ccccc2</chem>	OCH ₃	H

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Table 2 - Continuation

Example No.	R ³	R ⁴	R ⁵	X	M
II-253	H ₃ C-C ₆ H ₄ -			O	H
II-254	COOCH ₃			S	H
II-255	COOCH ₃			S	H
II-256	COOCH ₃			S	H
II-257	COOCH ₃			S	Na ⁺

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Table 2 - Continuation

Example No.	R ³	R ⁴	R ⁵	X	H
II-258	COOCH ₃			S	H
II-259	COOC ₃ H ₇ -i			S	H
II-260	Cl			S	H
II-261	Cl			S	H
II-262	Cl			S	H

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Table 2 - Continuation

Example No.	R ₃	R ₄	R ₅	X	H
II-263	C1 			S	H
II-264	C1 			S	H
II-265	C1 			S	H
II-266	Br 			S	H
II-267				S	H

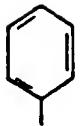
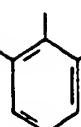
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Table 2 - Continuation

Example No.	R ₃	R ₄	R ₅	X	M
II-268	OCF ₃		HO-C ₆ H ₄ -	S	H
II-269		CH ₃	C ₆ H ₅ -	S	H
II-270		SO ₂ N(C ₂ H ₅) ₂	C ₆ H ₅ -	S	H
II-271		CH ₃	C ₆ H ₅ -	S	H
II-272		CH ₃	C ₆ H ₅ -	S	H

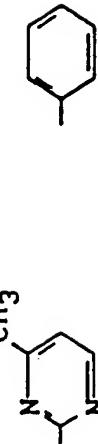
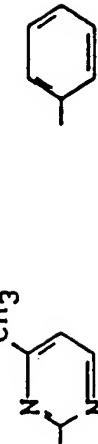
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Table 2 - Continuation

Example No.	R ³	R ⁴	R ⁵	X	H
II-273	C1			S	H
II-274	C1			S	H
II-275	COOCH ₃			S	H
II-276	COOCH ₃			S	H
II-277	COOCH ₃			S	H
II-278	COOC ₂ H ₅			S	H

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Table 2 - Continuation

Example No.	R ³	R ⁴	R ⁵	X	H
III-279	Cl			S	Na ⁺
III-280	OCF ₃			S	H
III-281				S	H
III-282	COOCH ₃			S	H
III-283	OCF ₃			S	H
III-284	COOCH ₃			S	H

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Table 2 - Continuation

Example No.	R ³	R ⁴	R ⁵	X	M
II-285	C1 			S	H
II-286				S	H
II-287				S	H
II-288				S	H
II-289				S	H

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Table 2 - Continuation

Example No.	R ³	R ⁴	R ⁵	X	M
II-290				S	H
II-291				S	H
II-292				S	H
II-293				S	H
II-294				S	H

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Table 2 - Continuation

Example No.	R ³	R ⁴	R ⁵	X	H
II-295	SCH ₃	OCH ₃	OH	S	H
II-296	Cl	OCH ₃	OH	S	H
II-297	OCF ₃	OCH ₃	OH	S	H
II-298	SO ₂ NHCOCH ₃	OCH ₃	OH	S	H
II-299	COOCH ₃	OCH ₃	OH	S	H

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Table 2 - Continuation

Example No.	R ³	R ⁴	R ⁵	X	H
II-300	CF ₃	OCH ₃	Ph-OH	S	H
II-301	Br	OCH ₃	Ph-OH	S	H
II-302	COOC ₂ H ₅	OCH ₃	Ph-OH	S	H
II-303	CF ₃	CH ₃	Ph-OH	S	H
II-304	Br	OCH ₃	Ph-OH	S	H

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Table 2 - Continuation

Example No.	R ³	R ⁴	R ⁵	X	M
II-305	COOC ₂ H ₅			S	H

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The sulphonyliso(thio)urea derivatives of the formula (II) which can be used according to the invention are known and/or can be prepared by methods which are known per se (compare, for example, Swiss Patent Specification 646,957, European Patent A-5,986, European Patent A-24,215, European Patent A-173,311, European Patent A-173,316, European Patent A-173,321 and European Patent A-173,957).

The amides of the formula (I) which can be used according to the invention as antidotes are particularly suitable for improving the tolerance of herbicidally active sulphonyliso(thio)urea derivatives of the formula (II) in important crop plants, such as maize, soyabean, cotton, sugar beet, cereals, rice and sugar cane, in particular maize.

The active compound combinations according to the invention exhibit a very good action against broad-leaved weeds and gramineous weeds in numerous crops of useful plants. They can therefore be used for selectively combating weeds in numerous crops of useful plants. By weeds, in the broadest sense, there are to be understood all plants which grow in locations where they are undesired.

The active compound combinations according to the invention can be used, for example, in connection with the following plants:

Dicotyledon weeds of the genera: Sinapis, Lepidium, Galium, Stellaria, Matricaria, Anthemis, Galinsoga, Chenopodium, Urtica, Senecio, Amaranthus, Portulaca, Xanthium, Convolvulus, Ipomoea, Polygonum, Sesbania, Ambrosia, Cirsium, Carduus, Sonchus, Solanum, Rorippa, Rotala, Lindernia, Lamium, Veronica, Abutilon, Emex, Datura, Viola, Galeopsis, Papaver and Centaurea.

Dicotyledon cultures of the genera: Gossypium, Glycine, Beta, Daucus, Phaseolus, Pisum, Solanum, Linum, Ipomoea, Vicia, Nicotiana, Lycopersicon, Arachis, Brassica, Lettuce, Cucumis and Cucurbita.

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Monocotyledon weeds of the genera: Echinochloa, Setaria, Panicum, Digitaria, Phleum, Poa, Festuca, Eleusine, Brachiaria, Lolium, Bromus, Avena, Cyperus, Sorghum, Agropyron, Cynodon, Monochoria, Fimbristylis, Sagittaria,

5 Eleocharis, Scirpus, Paspalum, Ischaemum, Sphenoclea, Dactyloctenium, Agrostis, Alopecurus and Apera.

Monocotyledon cultures of the genera: Oryza, Zea, Triticum, Hordeum, Avena, Secale, Sorghum, Panicum, Saccharum, Ananas, Asparagus and Allium.

10 However, the use of the active compound combinations according to the invention is in no way restricted to these genera, but also extends in the same manner to other plants.

15 The active compound combinations according to the invention are particularly suitable for selectively combating weeds in maize.

20 The selective herbicidal activity of the active compound combinations according to the invention is particularly pronounced if the herbicidal active compound and antidote are present in certain ratios. However, the weight ratios of herbicidal active compound to antidote in the active compound combinations according to the invention can vary within relatively wide limits. In general, 0.01 to 100 parts by weight, preferably 0.1 to 20 parts by weight, 25 of an antidote of the formula (I) are present per part by weight of herbicidal active compound of the formula (II).

30 The antidotes of the formula (I) which can be used according to the invention or the active compound combinations according to the invention of an antidote of the formula (I) and a herbicidal active compound of the formula (II) can be converted to the customary formulations, such as solutions, emulsions, wettable powders, suspensions, powders, dusting agents, pastes, soluble powders, granules, suspension-emulsion concentrates, natural and synthetic materials impregnated with active compound, and very fine capsules in polymeric materials.

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These formulations are produced in known manner, for example by mixing the active compounds with extenders, that is liquid solvents and/or solid carriers, optionally with the use of surface-active agents, that is emulsifying agents and/or dispersing agents and/or foam-forming agents.

In the case of the use of water as an extender, organic solvents can, for example, also be used as auxiliary solvents. As liquid solvents, there are suitable 10 in the main: aromatics, such as xylene, toluene or alkyl naphthalenes, chlorinated aromatics and chlorinated aliphatic hydrocarbons, such as chlorobenzenes, chloroethylenes or methylene chloride, aliphatic hydrocarbons, such as cyclohexane or paraffins, for example petroleum fractions, mineral and vegetable oils, alcohols, such as 15 butanol or glycol as well as their ethers and esters, ketones, such as acetone, methyl ethyl ketone, methyl isobutyl ketone or cyclohexanone, strongly polar solvents, such as dimethylformamide and dimethylsulphoxide, as well 20 as water.

As solid carriers there are suitable: for example ammonium salts and ground natural minerals, such as kaolins, clays, talc, chalk, quartz, attapulgite, montmorillonite or diatomaceous earth, and ground synthetic minerals, such as highly disperse silicic acid, alumina and 25 silicates, as solid carriers for granules there are suitable: for example crushed and fractionated natural rocks such as calcite, marble, pumice, sepiolite and dolomite, as well as synthetic granules of inorganic and organic 30 meals, and granules of organic material such as sawdust, coconut shells, maize cobs and tobacco stalks; as emulsifying and/or foam-forming agents there are suitable: for example non-ionic and anionic emulsifiers, such as polyoxyethylene-fatty acid esters, polyoxyethylene-fatty 35 alcohol ethers, for example alkylaryl polyglycol ethers, alkylsulphonates, alkylsulphates, arylsulphonates as well

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as albumin hydrolysis products; as dispersing agents there are suitable: for example lignin-sulphite waste liquors and methylcellulose.

Adhesives such as carboxymethylcellulose and
5 natural and synthetic polymers in the form of powders,
granules or latices, such as gum arabic, polyvinyl alcohol and polyvinyl acetate, as well as natural phospholipids, such as cephalins and lecithins, and synthetic phospholipids, can be used in the formulations. Further
10 additives can be mineral and vegetable oils.

It is possible to use colorants such as inorganic pigments, for example iron oxide, titanium oxide and Prussian Blue, and organic dyestuffs, such as alizarin dyestuffs, azo dyestuffs and metal phthalocyanine dye-
15 stuffs, and trace nutrients such as salts of iron, manganese, boron, copper, cobalt, molybdenum and zinc.

The formulations in general contain between 0.1 and 95 per cent by weight of an antidote which can be used according to the invention or of an active compound combination according to the invention of antidote and herbicidal active compound, and they preferably contain between
20 0.5 and 90 per cent by weight.

The antidotes which can be used according to the invention or the active compound combinations according to the invention, as such or in their formulations, can also be used, for combating weeds, as a mixture with known herbicides, a finished formulation or tank mix being possible. Mixtures with known active compounds, such as fungicides, insecticides, acaricides, nematicides, bird
30 repellants, growth factors, plant nutrients and agents for improving soil structure is also possible.

The antidotes which can be used according to the invention or the active compound combinations according to the invention can be used as such or in the form of their formulations or in the use forms prepared therefrom by further dilution, such as ready-to-use solutions, suspen-

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sions, emulsions, powders and granules. They are used in the customary manner, for example by watering, spraying, atomizing, dusting, scattering, dry dressing, moist dressing, wet dressing, slurry dressing or encrusting.

5 The antidotes which can be used according to the invention can be applied by the methods customary for such antidotes. Thus, the antidotes which can be used according to the invention can be applied before or after the herbicide or applied together with the herbicide.

10 Furthermore, crop plants can be protected from damage by seed treatment with the antidote before sowing (dressing) if the herbicide is used before or after sowing. Another possible use comprises applying the antidote to the seed furrow during sowing. If the plants are seedlings, these

15 can be treated with the antidote before being transplanted.

The amount of antidote applied is in principle independent of the herbicide and the amount of herbicidal active compound applied. The amounts of antidote applied are in general between 0.02 and 20 kg/ha, preferably between 0.05 and 5 kg/ha, for surface treatment. In the case of seed treatment, the amounts of antidote applied for surface treatment are between 0.2 and 200 g per kilogram of seed, preferably between 0.5 and 50 g per kilogram of seed. The amounts of active compound combinations according to the invention applied can be varied within a certain range. They are in general between 0.001 and 25 kg/ha, preferably between 0.01 and 5 kg/ha.

The amounts of herbicidal active compound applied in general vary between 0.001 and 20 kg/ha, preferably between 0.01 and 2 kg/ha.

Use Examples

Preparation of the active compound solutions required

In each case a stock solution was prepared from the amounts of herbicidal active compound or antidote required for the experiment. For this, technical grade active compounds were dissolved with a few millilitres

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(3 - 5) of the solvent mentioned, 1 drop of emulsifier "Tween 20" was added and the mixture was further diluted with water, and formulated active compounds were dispersed directly in water. The active compound solutions for
5 treatment of the test plant seeds in the experiment vessels were then prepared from these stock solutions by further dilution with water and if appropriate by mixing, so that the particular solution contained the desired amount of herbicidal active compound or antidote. The
10 volume of active compound solution applied per unit area in the experiments was kept constant.

Use of the antidote and herbicidal active compounds:

The active compound was applied to the seeds of the test plants by the tank mix method. For this, the
15 experiment vessels filled with soil in which the seeds of the test plants were sown were watered with the amount of antidote to be applied, mixed with the herbicide; vessels which had been treated only with water or herbicide served as control variants.

20 The experiment vessels were then kept in a green-house under controlled conditions (temperature, humidity). After two weeks, the experiments were evaluated in the form of visual rating, the damage to the test plants in comparison with the untreated control plants being
25 evaluated according to a scale from 0 (no damage, like untreated control) to 100 (total damage).

The test compounds, the amounts thereof applied, the test plants and the test results can be seen from the following table:

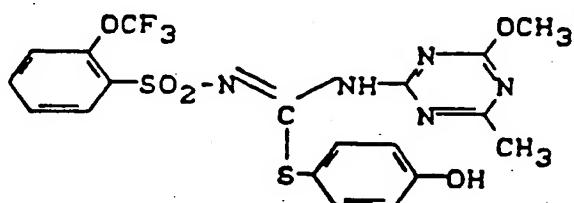
Pre-emergence test / greenhouse

Test compounds / Table 1

The following active compounds were employed as test compounds in the experiments described in the following Tables 1 and 2, the formulations used also being shown:

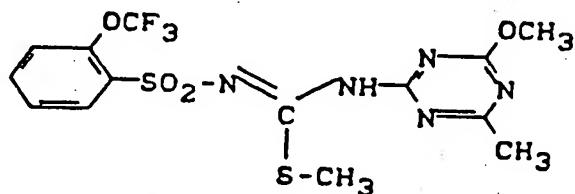
Herbicides:

Herbicide (II-294)



10 Formulation: Technical grade active compound, solvent
dimethylformamide

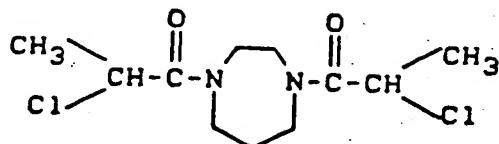
Herbicide (II-79)



15 Formulation: Technical grade active compound, solvent
dimethylformamide

Antidotes:

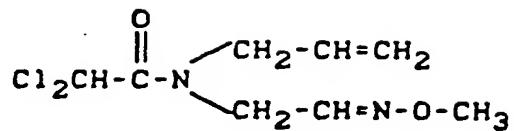
Antidote (I-475)



20 Formulation: 350 EC, that is to say emulsion concentrate
with 350 g of antidote per litre

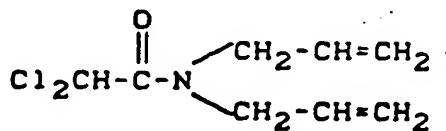
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Antidote (I-273)



Formulation: 500 EC, that is to say emulsion concentrate
with 500 g of antidote per litre

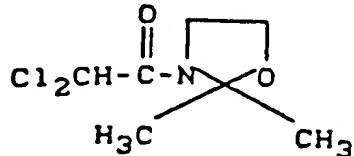
5 Antidote (I-271)



Formulation: 750 EC, that is to say emulsion concentrate
with 750 g of antidote per litre

Antidote (I-369)

10



Formulation: technical grade active compound, solvent
acetone

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Table A Testing on maize, use of the antidote by the tank mix method

Test compounds	Amount applied Rating: Damage in %					
	1000 g / ha 70 %	500 g / ha 50 %	250 g / ha 30 %	250 g / ha + 0 g / ha	250 g / ha + 50 g / ha	250 g / ha + 1000 g / ha
Herbicide (II-79)	1000 g / ha 70 %	500 g / ha 50 %	250 g / ha 30 %	250 g / ha + 0 g / ha	250 g / ha + 50 g / ha	250 g / ha + 1000 g / ha
Herbicide (II-79) + Antidote (a), (b), (c) or (d)	1000 g / ha + 1000 g / ha 200 g	500 g / ha + 500 g / ha 100 g	250 g / ha + 250 g / ha 50 g	250 g / ha + 0 g / ha	250 g / ha + 10 g / ha	250 g / ha + 1000 g / ha
(a) (I-273)	10 %	30 %	10 %	20 %	0	10 %
(b) (I-475)	20 %	40 %	10 %	20 %	10 %	20 %
(c) (I-271)	10 %	50 %	0	20 %	0	20 %
(d) (I-369)	20 %	20 %	0	20 %	0	0

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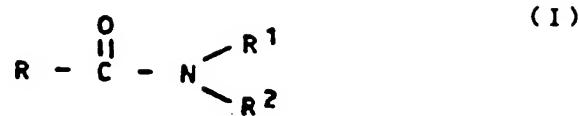
Table A - Continuation
 Testing on maize, use of the antidote by the tank mix method

Test compounds	Amount applied Rating: Damage in %					
	250 g / ha 40 %	250 g / ha + 500 g / ha + 100 g	250 g / ha + 500 g / ha + 250 g	125 g / ha + 125 g / ha + 125 g	125 g / ha + 25 g / ha + 25 g	0 g / ha + 1000 g
Herbicide(II-294)	500 g / ha 60 %					
Herbicide(II-294) + Antidote (a), (b), (c) or (d)	500 g / ha + 500 g / ha + 100 g	250 g / ha + 250 g / ha + 250 g	125 g / ha + 125 g / ha + 125 g	125 g / ha + 25 g / ha + 25 g	0 g / ha + 1000 g	
(a) (I-273)	20 %	30 %	20 %	10 %	20 %	0
(b) (I-475)	30 %	20 %	10 %	10 %	20 %	0
(c) (I-271)	30 %	40 %	30 %	30 %	20 %	0
(d) (I-369)	10 %	10 %	0	0	0	0

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Patent Claims

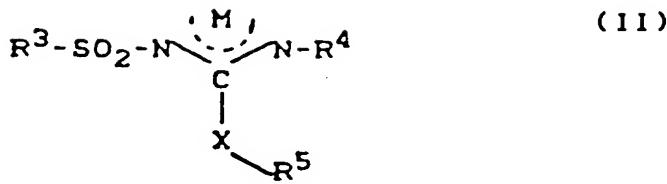
1. Use of amides of the formula (I):



in which

R represents hydrogen or halogen, or represents in each case optionally substituted alkyl, alkenyl, alkinyl, cycloalkyl, cycloalkenyl, bicycloalkyl, bicycloalkenyl, tricycloalkyl, aryl, heteroaryl, alkoxy, alkenyloxy, alkinyloxy, aryloxy, carbamoyl, alkoxycarbonyl or dithiolanyl and R¹ and R² independently of one another in each case represent hydrogen, or represent formyl, or represent chlorosulphonyl, or represent in each case optionally substituted alkyl, alkenyl, alkadienyl, alkinyl, cycloalkyl, cycloalkenyl, alkoxy, alkylthio, alkylcarbonyl, alkoxycarbonyl, phenyl, phenoxy, phenylsulphonyl or heterocyclyl, or represent amino, or represent alkylideneimino, or represent optionally substituted alkylcarbonylamino or di-(alkylcarbonyl)amino, or R¹ and R², together with the nitrogen atom to which they are bonded, represent in each case optionally substituted alkylideneimino, pyrrolidinyl, piperidinyl, piperidonyl, perhydroazepinyl, perhydroazocinyl, dihydropyrazolyl, dihydro- or tetrahydropyridinyl, azabicyclononyl, morpholinyl, perhydro-1,3-oxazinyl, 1,3-oxazolidinyl, 1,4-piperazinyl, perhydro-1,4-diazepinyl, dihydro-, tetrahydro- or perhydroquinolyl- or -isoquinolyl, indolyl or dihydro- or perhydroindolyl, as an antidote for improving the crop plant tolerance of herbicidally active sulphonyliso(thio)urea derivatives of the formula (II)

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in which

R^3 represents an optionally substituted radical from the series comprising alkyl, aralkyl, aryl and heteroaryl,

R^4 represents a six-membered aromatic heterocyclic radical which is optionally substituted and/or optionally fused and which contains at least one nitrogen atom,

R^5 represents an optionally substituted aliphatic, araliphatic, aromatic or heteroaromatic radical,

X represents oxygen or sulphur and

M represents hydrogen or one equivalent of a metal, and of adducts of compounds of the formula (II) and strong acids.

2. Method of improving the crop plant tolerance of herbicidally active sulphonyliso(thio)urea derivatives of the formula (II) according to Claim 1, characterized in that amides of the formula (I) according to Claim 1 are allowed to act on the crop plants and/or their environment together with the sulphonyliso(thio)urea derivatives of the formula (II).

3. Agents for selectively combating weeds in crops of useful plants, characterized in that they contain an active compound combination consisting of

- an amide of the formula (I) according to Claim 1 and
- at least one herbicidal sulphonyliso(thio)urea derivative of the formula (II) according to Claim 1.

4. Amides as claimed in claim 3 in which

R represents hydrogen, fluorine, chlorine or

bromine; or represents the radical - CO - N



wherein

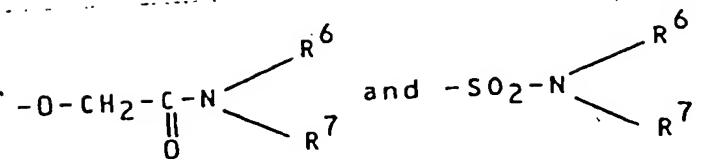
R⁶ and R⁷ are identical or different and each represent hydrogen, or represent in each case straight-chain or branched alkyl, alkenyl, alkinyl or cyanoalkyl with in each case up to 8 carbon atoms; or furthermore

R represents straight-chain or branched alkyl which has 1 to 20 carbon atoms and is optionally monosubstituted or polysubstituted by identical or different substituents, possible substituents being: hydroxyl, halogen, in particular fluorine, chlorine, bromine or iodine, cyano, cyanato and thiocyanato; in each case straight-chain or branched alkoxy, alkylthio, alkylcarbonyl, alkylcarbonyloxy, alkoxy carbonyl, halogenoalkoxy, halogeno-hydroxy-alkoxy, halogenoalkylcarbonyl, halogenoalkoxycarbonyl, halogenoalkylcarbonyloxy and halogenoalkenylcarbonyloxy with in each case up to 6 carbon atoms and if appropriate up to 9 identical or different halogen atoms;

and also phenyl, phenoxy, phenylthio and thienyl, in each case optionally monosubstituted or polysubstituted by identical or different substituents from the group comprising halogen, lower alkyl and/or lower alkoxy; and furthermore cycloalkyl with 3 to 7

carbon atoms and the radicals $\begin{array}{c} R^6 \\ | \\ -N- \\ | \\ R^7 \end{array}$, $\begin{array}{c} R^6 \\ | \\ -C-N \\ || \\ O \\ | \\ R^7 \end{array}$

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wherein

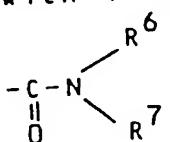
R^6 and R^7 in each case have the abovementioned meanings; or furthermore

5 R represents straight-chain or branched alkene,
which has 2 to 8 carbon atoms and is optionally
monosubstituted or polysubstituted by identical
or different substituents, possible substituents
being: hydroxyl, halogen,

10 straight-chain or branched
alkoxycarbonyl with up to 6 carbon atoms and
phenyl and phenoxy, in each case optionally mono-
substituted or polysubstituted by identical or
different substituents from the group comprising
15 halogen,

halogen, lower alkyl and lower alkoxy; or furthermore

20 R represents straight-chain or branched alkinyl with 2 to 8 carbon atoms; or furthermore R represents cycloalkyl, cycloalkenyl, bicycloalkyl, bicycloalkenyl or tricycloalkyl with in each case up to 12 carbon atoms and in each case optionally monosubstituted or polysubstituted by identical or different substituents, possible substituents being: straight-chain or branched alkyl with 1 to 4 carbon atoms, phenyl and the radical

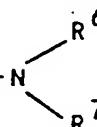


wherein

R^6 and R^7 have the abovementioned meaning; or
furthermore

30 furthermore R represents aryl which has 6 to 10 carbon atoms and is optionally monosubstituted or polysubstituted by identical or different substituents,

possible substituents being: halogen,
nitro,
carboxyl - also in the form of the carboxylate
anion - in each case straight-chain or branched
alkyl, alkoxy, halogenoalkyl, alkylcarbonyl, halo-
genoalkylcarbonyl and halogenoalkylcarbonylamino
with in each case up to 4 carbon atoms and if
appropriate up to 5 identical or different halogen
atoms, in particular fluorine, chlorine or bromine,

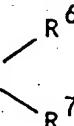
10 and the radical $-CO-N$ 

wherein

R⁶ and R⁷ have the abovementioned meaning,
or furthermore

15 R represents furyl, thieryl, pyridyl or dithiol-
anyl, in each case optionally monosubstituted or
polysubstituted by identical or different sub-
stituents, possible substituents being: halogen,

straight-chain or branched alkyl with up to 6

20 carbon atoms and the radical $-CO-N$ 

wherein

R⁶ and R⁷ have the abovementioned meaning,
or finally

25 R represents in each case straight-chain or
branched alkoxy, alkenyloxy, alkinyloxy, alkoxy-
carbonyl or phenoxy, in each case optionally mono-
substituted or polysubstituted by identical or
different substituents from the group comprising
phenyl and halogen,

30 R¹ and R², which are identical or different,
independently of one another, represent hydrogen;

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formyl or chlorosulphonyl, or represent phenyl, phenoxy or phenylsulphonyl, in each case optionally monosubstituted or polysubstituted by identical or different substituents from the group comprising halogen,

5 and lower alkyl, or furthermore represent straight-chain or branched alkyl which has 1 to 12 carbon atoms and is optionally monosubstituted or polysubstituted by identical or different substituents, possible substituents being: hydroxyl, mercapto, cyano and halogen,

10 and in each case straight-chain or branched alkoxy, alkoximino, alkylcarbonyl, alkylcarbonyloxy, alkoxy carbonyl, alkoxy carbonyloxy, alkylthiocarbonyloxy, halogenoalkylcarbonyloxy and alkylsulphonyloxy with in each case up to 6 carbon atoms and, where appropriate, up to 5 identical or different halogen atoms.

15 20 and furthermore alkylamino-carbonyloxy, dialkylaminocarbonyloxy, alkenyl-aminocarbonyloxy and dialkenylaminocarbonyloxy with in each case up to 6 carbon atoms in the individual straight-chain or branched alkyl or alkenyl parts; and furthermore cycloalkylamino-carbonyloxy with 3 to 7 carbon atoms in the cycloalkyl part, and phenylaminocarbonyloxy which is optionally monosubstituted or polysubstituted by identical or different substituents from the group comprising halogen,

25 30 and lower alkyl, and furthermore cycloalkyl which has 3 to 7 carbon atoms and is optionally monosubstituted or polysubstituted by identical or different substituents from the group comprising halogen,

35 and lower alkyl, phenyl which

is optionally monosubstituted or polysubstituted by identical or different substituents from the group comprising nitro, halogen,

5 lower alkyl and dioxyalkylene, furyl, tetrahydrofuryl, pyrazolyl, oxazolyl, isoxazolyl, thiazolyl, thiadiazolyl, oxadiazolyl, pyridyl and pyrimidinyl, in each case optionally monosubstituted or polysubstituted by identical or different substituents from the group

10 comprising halogen,

and lower alkyl, and amino which is optionally monosubstituted or polysubstituted by identical or different substituents from the group comprising in each case lower alkyl, halogenoalkylcarbonyl, halogenophenoxyalkylcarbonyl and halogenoalkylcarbonylaminoalkyl; or furthermore

15 R¹ and R² represent straight-chain or branched alkenyl, alkadienyl or alkinyl with in each case 3 to 8 carbon atoms and in each case optionally monosubstituted or polysubstituted by identical or different substituents, possible substituents being: halogen,

20 cyano and in each case straight-chain or branched alkoxy, alkylcarbonyl and alkoxy-carbonyl with in each case up to 6 carbon atoms; or furthermore

25 R¹ and R² represent cycloalkyl or cycloalkenyl with in each case 3 to 8 carbon atoms and in each case optionally monosubstituted or polysubstituted by identical or different substituents from the group comprising halogen,

30 and lower alkyl; or furthermore represent piperidyl, pyridyl, thienyl, oxazolyl, isoxazolyl, thiazolyl, oxadiazolyl, thiadiazolyl, fluorenyl, phthalimidoyl or dioxanyl, in

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each case optionally monosubstituted or polysubstituted by identical or different substituents and/or benzo-fused, possible substituents being: halogen,

cyano and in each case straight-chain or branched alkyl and alkanediyl with in each case 1 to 4 carbon atoms; or furthermore

R^1 and R^2 represent in each case straight-chain or branched alkoxy, alkylthio, alkylcarbonyl, alkoxy carbonyl, halogenoalkylcarbonyl or halogeno-alkoxy carbonyl with in each case up to 6 carbon atoms and, where appropriate, up to 5 identical or different halogen atoms;

or furthermore

R^1 and R^2 represent amino or alkylideneimino which is optionally monosubstituted or polysubstituted by identical or different substituents, possible substituents being: in each case straight-chain or branched alkyl, alkenyl, alkinyl, alkylcarbonyl and halogenoalkylcarbonyl with in each case up to 8 carbon atoms and, where appropriate, up to 5 identical or different halogen atoms;

or

R^1 and R^2 , together with the nitrogen atom to which they are bonded, represent alkylideneamino, pyrrolidinyl, piperidinyl, piperidonyl, perhydroazepinyl, perhydroazocinyl, dihydropyrazolyl, dihydro- or tetrahydropyridyl, azabicyclononyl, morpholinyl, perhydro-1,3-oxazinyl, 1,3-oxazolidinyl, 1,4-piperazinyl, perhydro-1,4-diazepinyl, dihydro-, tetrahydro- or perhydroquinolyl or -isoquinolyl, indolyl or dihydro- or perhydroindolyl, in each case optionally monosubstituted or polysubstituted by identical or different substituents, possible substituents being: hydroxyl, halogen

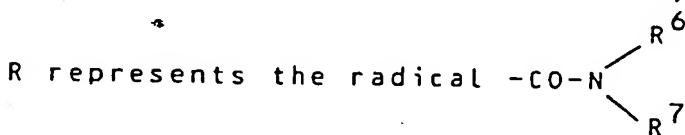
cyano and formyl; and in each case straight-chain or branched, where appropriate divalent alkyl, alkanediyl, alkoxy, dioxyalkylene, alkylcarbonyl, alkoxy carbonyl and halogenoalkylcarbonyl with in each case up to 8 carbon atoms, in each case straight-chain or branched alkylamino and dialkylamino with in each case up to 4 carbon atoms in the individual alkyl parts, phenyl, naphthyl, pyridyl and piperidinyl, in each case optionally monosubstituted or polysubstituted by identical or different substituents from the group comprising halogen.

nitro and in each case lower alkyl, halogenoalkyl, alkoxy, alkylcarbonyl or alkoxy-carbonyl, and straight-chain or branched cyclo-propylalkyl, cyclohexylalkyl, piperidinylalkyl, phenylalkyl and phenylalkenyl with up to 4 carbon atoms in the particular alkyl or alkenyl parts and in each case optionally monosubstituted or polysubstituted by identical or different substituents from the group comprising halogen,

lower alkyl and halogenoalkylcarbonyl.

5. Amides as claimed in claim 3 in which

R represents hydrogen or chlorine; or furthermore



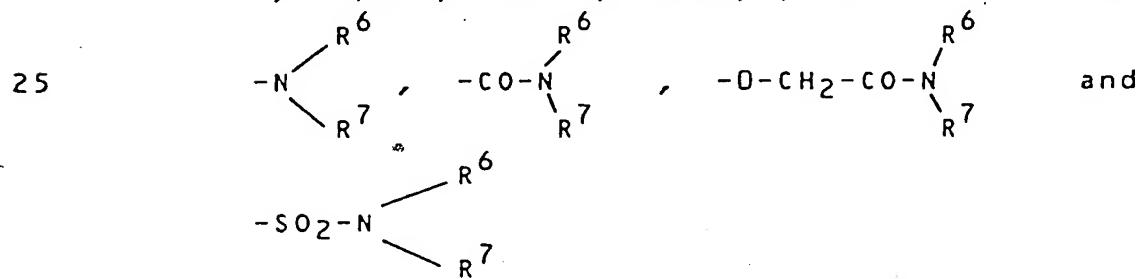
wherein

30 R⁶ and R⁷ are identical or different and independently of one another each represent hydrogen, methyl, ethyl, allyl, propargyl, but-1-in-3-yl, 3-methylbut-1-in-3-yl or 2-cyanoprop-2-yl; or furthermore

R represents straight-chain or branched alkyl with up to 15 carbon atoms; or furthermore

5 R represents straight-chain or branched halogeno-alkyl with 1 to 6 carbon atoms and 1 to 9 identical or different halogen atoms, or furthermore

10 R represents straight-chain or branched alkyl which has 1 to 6 carbon atoms and is mono-, di- or trisubstituted by identical or different substituents, possible substituents being: hydroxyl, fluorine, chlorine, bromine, cyano, cyanato, thiocyanato, methoxy, ethoxy, methylthio, ethylthio, acetyl, propionyl, acetoxy, propionyloxy, methoxy-carbonyl, ethoxycarbonyl, 1,1,3,3-tetrachloro-2-hydroxyprop-2-ylloxy, 1,1,1,3,3-pentachloro-2-hydroxyprop-2-yloxy, chloroacetyl, dichloroacetyl, 15 chloroacetoxy, dichloroacetoxy, pentachlorobutadien-1-ylcarbonyloxy and phenyl, phenoxy, phenylthio and thienyl, in each case optionally mono-, di- or trisubstituted by identical or different substituents from the group comprising chlorine, methyl and methoxy; and furthermore cyclopropyl, cyclopentyl and cyclohexyl; and the radicals



wherein

30 R^6 and R^7 are identical or different and in each case independently of one another represent hydrogen, methyl, ethyl, allyl, propargyl, but-1-in-3-yl, 3-methyl-but-1-in-3-yl or 2-cyanoprop-2-yl; or furthermore

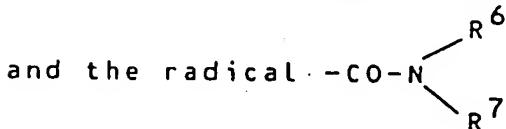
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R represents straight-chain or branched alkenyl which has 2 to 5 carbon atoms and is mono-, di- or trisubstituted by identical or different substituents, possible substituents being: hydroxyl, 5 fluorine, chlorine, bromine, methoxycarbonyl, ethoxycarbonyl and phenyl and phenoxy, in each case optionally mono-, di- or trisubstituted by identical or different substituents from the group comprising fluorine, chlorine, methyl and methoxy;

10 or furthermore

R represents straight-chain or branched alkinyl with 2 to 5 carbon atoms; or furthermore

15 R represents cyclopropyl, cyclopentyl, cyclohexyl, cycloheptyl, cyclohexenyl, bicycloheptenyl, bi-cyclooctyl, bicyclononyl or tricyclodecyl, in each case optionally mono-, di-, tri-, tetra- or penta-substituted by identical or different substituents, possible substituents being: methyl, ethyl, phenyl

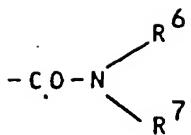


20 wherein

R⁶ and R⁷ are identical or different and in each case independently of one another represent hydrogen, methyl, ethyl, allyl, propargyl, but-1-in-3-yl, 3-methylbut-1-in-3-yl or 2-cyanoprop-2-yl, or furthermore

25 R represents phenyl which is optionally mono-, di- or trisubstituted by identical or different substituents, possible substituents being: fluorine, chlorine, bromine, iodine, nitro, methyl, ethyl, methoxy, ethoxy, carboxyl - also in the form of the carboxylate anion -, trifluoromethyl, chloroacetamido, dichloroacetamido and the radical

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wherein

R⁶ and R⁷ are identical or different and in each case independently of one another represent hydrogen, methyl, ethyl, allyl, propargyl, but-1-in-3-yl, 3-methylbut-1-in-3-yl or 2-cyanoprop-2-yl; or furthermore

R represents furyl, thienyl, pyridyl or dithioloxy, in each case optionally mono-, di- or tri-substituted by identical or different substituents, possible substituents being: chlorine, methyl,



wherein

R⁶ and R⁷ are identical or different and in each case independently of one another represent hydrogen, methyl, ethyl, allyl, propargyl, but-1-in-3-yl, 3-methylbut-1-in-3-yl or 2-cyanoprop-2-yl; or finally

R represents methoxy, ethoxy, allyloxy, propargyloxy, butinyloxy, methoxycarbonyl, ethoxycarbonyl or phenyl, in each case optionally mono-, di- or trisubstituted by identical or different substituents from the group comprising fluorine, chlorine, bromine and phenyl, and

R¹ and R², which are identical or different, independently of one another represent hydrogen, formyl or chlorosulphonyl, or represent phenyl, phenoxy or phenylsulphonyl, in each case optionally mono-, di- or trisubstituted by identical or different substituents from the group comprising fluorine, chlorine, bromine or methyl; or furthermore represent straight-chain or branched alkyl

which has 1 to 8 carbon atoms and is optionally mono-, di- or trisubstituted by identical or different substituents, possible substituents being: hydroxyl, mercapto, cyano, fluorine, chlorine, bromine, methoxy, ethoxy, propoxy, butoxy, methoximino, ethoximino, acetyl, propionyl, acetoxy, propionyloxy, methoxycarbonyl, ethoxycarbonyl, methoxycarbonyloxy, ethoxycarbonyloxy, methylthiocarbonyloxy, ethylthiocarbonyloxy, chloroacetoxy, dichloroacetoxy, methylsulphonyloxy, ethylsulphonyloxy, methylaminocarbonyloxy, dimethylaminocarbonyloxy, ethylaminocarbonyloxy, diethylaminocarbonyloxy, propylaminocarbonyloxy, butylaminocarbonyloxy, allylaminocarbonyloxy, diallylaminocarbonyloxy and cyclohexylaminocarbonyloxy, and phenylaminocarbonyloxy which is optionally mono-, di- or trisubstituted by identical or different substituents from the group comprising chlorine and methyl; and furthermore cyclopropyl, cyclopentyl, cyclohexyl and cycloheptyl, in each case optionally mono-, di-, tri-, tetra- or penta-substituted by identical or different substituents from the group comprising chlorine and methyl; and phenyl which is optionally mono-, di- or tri-substituted by identical or different substituents from the group comprising nitro, fluorine, chlorine, bromine, methyl and dioxymethylene, and furyl, tetrahydrofuryl, pyrazolyl, oxazolyl, isoxazolyl, thiazolyl, thiadiazolyl, oxadiazolyl, pyridyl and pyrimidinyl, in each case optionally mono- or disubstituted by identical or different substituents from the group comprising methyl, ethyl, propyl and chlorine; and amino which is optionally monosubstituted or disubstituted by identical or different substituents from the group comprising methyl, ethyl, chloroacetyl, dichloro-

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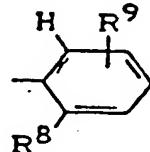
acetyl, chlorophenoxyacetyl, dichloroacetamido-
methyl and dichloroacetamidoethyl; or furthermore
R¹ and R² represent straight-chain or branched
5 alkenyl, alkadienyl or alkinyl with in each case
3 to 5 carbon atoms and in each case optionally
monosubstituted or disubstituted by identical or
different substituents from the group comprising
chlorine, methoxy, ethoxy, acetyl, methoxycarbon-
ylyl, ethoxycarbonyl or cyano; or furthermore
10 R¹ and R² represent cyclopropyl, cyclopentyl,
cyclohexyl, cyclohexenyl or cyclooctyl, in each
case optionally mono-, di-, tri-, tetra- or penta-
substituted by identical or different substituents
from the group comprising chlorine and methyl; or
15 furthermore
R¹ and R² represent piperidyl, pyridyl,
thienyl, oxazolyl, isoxazolyl, thiadiazolyl,
. fluorenyl, phthalimidoyl or dioxanyl, in each case
optionally mono-, di- or trisubstituted by iden-
20 tical or different substituents from the group
comprising fluorine, chlorine, bromine, cyano,
methyl, ethyl, propyl, propanediyl and butanediyl
and/or benzo-fused; or furthermore
R¹ and R² represent methoxy, ethoxy, propoxy,
25 butoxy, methylthio, ethylthio, propylthio, butyl-
thio, acetyl, chloroacetyl, dichloroacetyl,
methoxycarbonyl, ethoxycarbonyl, chloroethoxycar-
bonyl or bromoethoxycarbonyl, and furthermore
R¹ and R² represent amino or propylideneimino,
30 optionally monosubstituted or disubstituted by
identical or different substituents from the group
comprising methyl, ethyl, allyl, propargyl,
acetyl, chloroacetyl and dichloroacetyl, or
R¹ and R², together with the nitrogen atom to
35 which they are bonded, represent methylideneimino,
ethylideneimino, propylideneimino, pyrrolidinyl,

:
5 piperidinyl, piperidonyl, perhydroazepinyl, perhydroazocinyl, dihydropyrazolyl, dihydro- or tetrahydropyridyl, azabicyclononyl, morpholinyl, perhydro-1,3-oxazinyl, 1,3-oxazolidinyl, 1,4-piperazinyl, perhydro-1,4-diazepinyl, dihydro-, tetrahydro- or perhydroquinolyl or -isoquinolyl, indolyl or dihydro- or perhydroindolyl, in each case optionally mono-, di-, tri-, tetra- or penta-substituted by identical or different substituents, possible substituents being: hydroxyl, fluorine, chlorine, bromine, cyano, formyl, methyl, ethyl, propyl, butyl, ethanediyl, propanediyl, methoxy, ethoxy, propoxy, butoxy, dioxyethylene, dioxypropylene, dioxybutylene, acetyl, propionyl, chloroacetyl, dichloroacetyl, α -chloropropionyl, methoxycarbonyl, ethoxycarbonyl, methylamino, ethylamino, dimethylamino, diethylamino and phenyl,
10 naphthyl or piperidinyl, in each case optionally mono-, di- or trisubstituted by identical or different substituents from the group comprising fluorine, chlorine, bromine, nitro, methyl, ethyl, methoxy, ethoxy, trifluoromethyl, acetyl, propionyl, methoxycarbonyl and ethoxycarbonyl, and cyclopropylmethyl, cyclohexylmethyl, piperidinylethyl, piperidinylpropyl, benzyl, phenylethyl and phenylpropenyl, in each case optionally mono-, di- or trisubstituted by identical or different substituents from the group comprising chlorine, methyl, chloroacetyl and dichloroacetyl.
15
20
25

6. Any new compound substantially as herein described and exemplified in any one of the examples in table 1.

7. Herbicidal sulphonyliso (thio) urea derivatives as claimed in claim 3 in which

R³ represents the radical



wherein

R⁸ and R⁹ are identical or different and represent hydrogen, halogen

25

cyano,

nitro or C₁-C₆-alkyl [which is optionally substituted by fluorine, chlorine, bromine, cyano, carboxyl, C₁-C₄-alkoxycarbonyl, C₁-C₄-alkyl-amino-carbonyl, di-(C₁-C₄-alkyl)-amino-carbonyl, hydroxyl, C₁-C₄-alkoxy, formyloxy, C₁-C₄-alkyl-carbonyloxy, C₁-C₄-alkoxy-carbonyloxy, C₁-C₄-alkylamino-carbonyloxy, C₁-C₄-alkylthio, C₁-C₄-

30

alkylsulphinyl, C₁-C₄-alkylsulphonyl, di-(C₁-C₄-alkyl)-aminosulphonyl, C₃-C₆-cycloalkyl or phenyl], or represent C₂-C₆-alkenyl [which is optionally substituted by fluorine, chlorine, bromine, cyano, C₁-C₄-alkoxycarbonyl, carboxyl or phenyl], or represent C₂-C₆-alkinyl [which is optionally substituted by fluorine, chlorine, bromine, cyano, C₁-C₄-alkoxy-carbonyl, carboxyl or phenyl], or represent C₁-C₄-alkoxy [which is optionally substituted by fluorine, chlorine, bromine, cyano, carboxyl, C₁-C₄-alkoxyimino-C₁-C₄-alkyl, C₁-C₄-alkoxy-carbonyl, C₁-C₄-alkoxy, C₁-C₄-alkylthio, C₁-C₄-alkylsulphinyl or C₁-C₄-alkylsulphonyl], or represent C₁-C₄-alkylthio [which is optionally substituted by fluorine, chlorine, bromine, cyano, carboxyl, C₁-C₄-alkoxycarbonyl, C₁-C₄-alkylthio, C₁-C₄-alkylsulphinyl or C₁-C₄-alkylsulphonyl], or represent C₃-C₆-alkenyloxy [which is optionally substituted by fluorine, chlorine, bromine, cyano, nitro, C₁-C₃-alkylthio or C₁-C₄-alkoxycarbonyl], C₃-C₆-alkinyloxy or C₃-C₆-alkinylthio, or represent the radical -S(O)_p-R¹⁰,

wherein

p represents the number 1 or 2 and

R¹⁰ represents C₁-C₄-alkyl [which is optionally substituted by fluorine, chlorine, bromine, cyano or C₁-C₄-alkoxy-carbonyl], C₃-C₆-alkenyl, C₃-C₆-alkinyl, C₁-C₄-alkoxy, C₁-C₄-alkoxy-amino, C₁-C₄-alkoxy-C₁-C₄-alkylamino, C₁-C₄-alkylamino or di(C₁-C₄-alkyl)-amino, or furthermore

R⁸ and R⁹ represent phenyl or phenoxy, or represent

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C_1-C_4 -alkylcarbonylamino, C_1-C_4 -alkoxycarbonyl-amino, C_1-C_4 -alkylamino-carbonylamino, di-(C_1-C_4 -alkyl)-amino-carbonylamino, or represent the radical $-CO-R^{11}$,

5 wherein

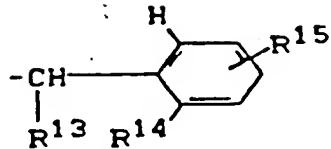
R^{11} represents C_1-C_6 -alkyl, C_1-C_6 -alkoxy, C_1-C_4 -alkoxyimino- C_1-C_4 -alkoxy, C_3-C_6 -cycloalkoxy, C_3-C_6 -alkenyloxy, C_1-C_4 -alkylthio, C_1-C_4 -alkylamino, C_1-C_4 -alkoxyamino, C_1-C_4 -alkoxy- C_1-C_4 -alkyl-amino or di-(C_1-C_4 -alkyl)amino [which are optionally substituted by fluorine and/or chlorine], or furthermore R^8 and R^9 represent C_1-C_4 -alkylsulphonyl- C_1-C_4 -alkylsulphonyloxy, di-(C_1-C_4 -alkyl)-aminosulphonylamino or represent the radical $-CH=N-R^{12}$,

wherein

R^{12} represents C_1-C_6 -alkyl which is optionally substituted by fluorine, chlorine, cyano, carboxyl, C_1-C_4 -alkoxycarbonyl, C_1-C_4 -alkylthio, C_1-C_4 -alkylsulphanyl or C_1-C_4 -alkylsulphonyl, or represents benzyl which is optionally substituted by fluorine or chlorine, or represents C_3-C_6 -alkenyl or C_3-C_6 -alkinyl which is optionally substituted by fluorine or chlorine, or represents phenyl which is optionally substituted by fluorine, chlorine, bromine, C_1-C_4 -alkyl, C_1-C_4 -alkoxy, trifluoromethyl, trifluoromethoxy or trifluoromethylthio, or represents C_1-C_6 -alkoxy, C_3-C_6 -alkenoxy, C_3-C_6 -alkinoxy or benzyloxy which is optionally substituted by fluorine and/or chlorine, or represents amino, C_1-C_4 -alkylamino, di-(C_1-C_4 -alkyl)amino, phenylamino, C_1-C_4 -alkyl-carbonyl-amino, C_1-C_4 -alkoxy-carbonylamino, or C_1-C_4 -alkyl-sulphonylamino, or represents phenylsulphonylamino which is optionally substituted

ted by fluorine, chlorine, bromine or methyl;
and wherein, furthermore,

R³ represents the radical



wherein

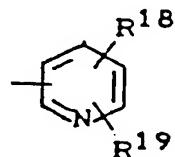
5 R¹³ represents hydrogen or C₁-C₄-alkyl and
R¹⁴ and R¹⁵ are identical or different and repres-
ent hydrogen, fluorine, chlorine, bromine, nitro
cyano, C₁-C₄-alkyl [which is optionally sub-
stituted by fluorine and/or chlorine], C₁-C₄-
10 alkoxy [which is optionally substituted by fluo-
rine and/or chlorine], carboxyl, C₁-C₄-alkoxy-
carbonyl, C₁-C₄-alkylsulphonyl or di-(C₁-C₄-
alkyl)-aminosulphonyl;
or wherein, furthermore,

15 R³ represents the radical R¹⁶-

wherein

20 R¹⁶ and R¹⁷ are identical or different and repres-
ent hydrogen, fluorine, chlorine, bromine, nitro,
cyano, C₁-C₄-alkyl [which is optionally sub-
stituted by fluorine and/or chlorine] or C₁-C₄-
alkoxy [which is optionally substituted by
fluorine and/or chlorine];
or wherein, furthermore,

R³ represents the radical



25 wherein

R¹⁸ and R¹⁹ are identical or different and repres-
ent hydrogen, fluorine, chlorine, bromine, nitro,
cyano, C₁-C₄-alkyl [which is optionally sub-

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stituted by fluorine and/or chlorine] or C₁-C₄-alkoxy [which is optionally substituted by fluorine and/or chlorine], or represent C₁-C₄-alkylthio, C₁-C₄-alkylsulphanyl or C₁-C₄-alkylsulphonyl [which are optionally substituted by fluorine and/or chlorine], or represent di-(C₁-C₄-alkyl)-amino-sulphonyl or C₁-C₄-alkoxy-carbonyl;
or wherein, furthermore,

R³ represents the radical R²⁰--R²¹

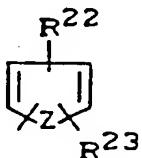
10 wherein

R²⁰ and R²¹ are identical or different and represent hydrogen, fluorine, chlorine, bromine, C₁-C₄-alkyl [which is optionally substituted by fluorine and/or bromine] or C₁-C₄-alkoxy [which is optionally substituted by fluorine and/or chlorine], or represent C₁-C₄-alkylthio, C₁-C₄-alkylsulphanyl or C₁-C₄-alkylsulphonyl [which are optionally substituted by fluorine and/or chlorine], or represent di-(C₁-C₄-alkyl)-amino-sulphonyl;

20

or wherein, furthermore,

R³ represents the radical



wherein

R²² and R²³ are identical or different and represent hydrogen, fluorine, chlorine, bromine, cyano, nitro, C₁-C₄-alkyl [which is optionally substituted by fluorine and/or chlorine], C₁-C₄-alkoxy [which is optionally substituted by fluorine and/or chlorine], C₁-C₄-alkylthio, C₁-C₄-alkylsulphanyl or C₁-C₄-alkylsulphonyl [which is option-

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ally substituted by fluorine and/or chlorine], di-(C₁-C₄-alkyl)-amino-sulphonyl or C₁-C₄-alkoxy-carbonyl and

Z represents oxygen, sulphur or the grouping N-Z¹,

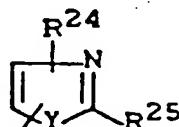
5 wherein

Z¹ represents hydrogen, C₁-C₄-alkyl [which is optionally substituted by fluorine, chlorine, bromine or cyano], C₃-C₆-cycloalkyl, benzyl, phenyl [which is optionally substituted by fluorine, chlorine, bromine or nitro], C₁-C₄-alkyl-carbonyl, C₁-C₄-alkoxy-carbonyl or di-(C₁-C₄-alkyl)-amino-carbonyl;

10

or wherein, furthermore,

R³ represents the radical



15 wherein

R²⁴ represents hydrogen, C₁-C₅-alkyl or halogen,

R²⁵ represents hydrogen or C₁-C₅-alkyl and

Y represents sulphur or the grouping N-R²⁶,

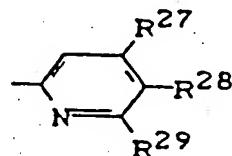
wherein

20

R²⁶ represents hydrogen or C₁-C₅-alkyl;

and wherein, furthermore,

R⁴ represents the radical



wherein

25

R²⁷ and R²⁹ are identical or different and represent hydrogen, fluorine, chlorine, bromine, C₁-C₄-alkyl [which is optionally substituted by fluorine and/or chlorine] or C₁-C₄-alkoxy [which is optionally substituted by fluorine and/or chlorine], with the proviso that at least one of the radicals

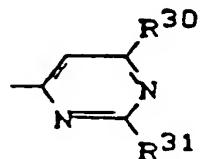
30

R²⁷ and R²⁹ is other than hydrogen, and

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R²⁸ represents hydrogen, fluorine, chlorine, bromine, cyano or C₁-C₄-alkyl [which is optionally substituted by fluorine and/or chlorine]; or wherein, furthermore,

5 R⁴ represents the radical

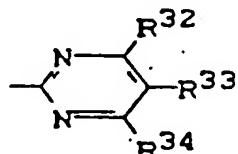


wherein

R³⁰ and R³¹ are identical or different and represent hydrogen, fluorine, chlorine, bromine, C₁-C₄-alkyl [which is optionally substituted by fluorine and/or chlorine], C₁-C₄-alkoxy [which is optionally substituted by fluorine and/or chlorine], C₁-C₄-alkylamino or di-(C₁-C₄-alkyl)-amino, with the proviso that at least one of the radicals R³⁰ and R³¹ is other than hydrogen;

15 or wherein, furthermore,

R⁴ represents the radical



wherein

R³² represents hydrogen, fluorine, chlorine, bromine, hydroxyl or C₁-C₄-alkyl [which is optionally substituted by fluorine and/or chlorine] or C₁-C₄-alkoxy [which is optionally substituted by fluorine and/or chlorine],

R³³ represents hydrogen, fluorine, chlorine, bromine, C₁-C₄-alkyl [which is optionally substituted by fluorine and/or chlorine], cyano, formyl, C₁-C₄-alkyl-carbonyl or C₁-C₄-alkoxy-carbonyl and

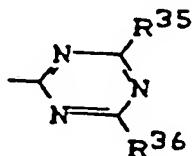
R³⁴ represents hydrogen, fluorine, chlorine,

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5 bromine, hydroxyl, C₁-C₄-alkyl [which is optionally substituted by fluorine and/or chlorine], C₁-C₄-alkoxy [which is optionally substituted by fluorine and/or chlorine], amino, C₁-C₄-alkyl-amino or di-(C₁-C₄-alkyl)-amino, or R³³ and R³⁴ together represent C₃-C₄-alkane-diyl;

or wherein, furthermore,

10 R⁴ represents the radical

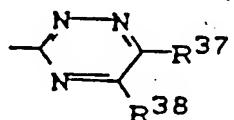


15 wherein

R³⁵ and R³⁶ are identical or different and represent fluorine, chlorine, bromine, hydroxyl, C₁-C₄-alkyl [which is optionally substituted by fluorine and/or chlorine], C₃-C₅-cycloalkyl, C₁-C₄-alkoxy [which is optionally substituted by fluorine and/or chlorine] or C₁-C₄-alkylthio, or represent C₁-C₄-alkyl-amino or di-(C₁-C₄-alkyl)-amino;

and wherein, furthermore,

20 R⁴ represents the radical



wherein

R³⁷ and R³⁸ are identical or different and represent hydrogen, methyl or methoxy;

and wherein, furthermore,

25 R⁵ represents C₁-C₁₂-alkyl [which is optionally substituted by fluorine, chlorine, cyano, C₁-C₄-alkoxy, C₁-C₄-alkylthio, C₁-C₄-alkylsulphinyl, C₁-C₄-alkylsulphonyl, C₁-C₄-alkyl-carbonyl, C₁-C₄-alkoxy-carbonyl, C₁-C₄-alkylaminocarbonyl or di-(C₁-C₄-alkyl)-aminocarbonyl], or repres-

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ents C₃-C₆-alkenyl, C₃-C₆-alkinyl, C₃-C₆-cycloalkyl, C₃-C₆-cycloalkyl-C₁-C₂-alkyl or phenyl-C₁-C₂-alkyl [which is optionally substituted in the phenyl part by fluorine, chlorine, nitro, cyano, C₁-C₄-alkyl, C₁-C₄-alkoxy or C₁-C₄-alkoxy-carbonyl],

or wherein, furthermore,

R⁵ represents a phenyl radical which is optionally substituted by one or more radicals from the series comprising halogen [such as, in particular, fluorine, chlorine, bromine and iodine], cyano, nitro, hydroxy, carboxy, C₁-C₆-alkyl [which is optionally substituted by fluorine, chlorine, bromine, nitro, cyano, hydroxyl, carboxyl, C₁-C₄-alkoxy-carbonyl, C₁-C₄-alkoxy, C₁-C₄-alkylthio or phenyl], C₃-C₆-cycloalkyl, C₁-C₄-alkoxy [which is optionally substituted by fluorine, chlorine, bromine, cyano, carboxy, C₁-C₄-alkoxy, C₁-C₄-alkylthio or C₁-C₄-alkoxy-carbonyl], C₁-C₄-alkylthio [which is optionally substituted by fluorine, chlorine, bromine, cyano, carboxy, C₁-C₄-alkyl-amino, C₁-C₄-alkyl-amino and di-(C₁-C₄-alkyl)-amino [which are optionally substituted by fluorine, chlorine, bromine, cyano, carboxyl, C₁-C₄-alkoxy or C₁-C₄-alkoxy-carbonyl], C₁-C₄-alkyl-carbonylamino, C₁-C₄-alkoxy-carbonylamino, (di)-C₁-C₄-alkyl-amino-carbonyl-amino, formyl, C₁-C₄-alkyl-carbonyl, benzoyl, C₁-C₄-alkoxy-carbonyl, phenoxy-carbonyl, benzyloxycarbonyl, phenyl [which is optionally substituted by fluorine, chlorine, bromine, cyano, nitro, hydroxyl or methyl], phenoxy, phenylthio, phenylsulphonyl, phenylamino and phenylazo [which are optionally substituted by fluorine, chlorine, bromine, cyano, nitro, methyl and/or trifluoromethyl], pyridoxy and pyrimidoxy]

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[which are optionally substituted by fluorine, chlorine, bromine, cyano, nitro, methyl and/or trifluoromethyl], C₁-C₄-alkyl-carbonyloxy, C₁-C₄-alkoxy-carbonyloxy, C₁-C₄-alkyl-amino-
5 carbonyloxy and di-(C₁-C₄-alkyl)-amino-carbonyloxy, or which is optionally fused by an alkylene chain [which is optionally branched and/or interrupted by one or more oxygen atoms] or a benzo radical [which is optionally substituted by
10 fluorine, chlorine, bromine, cyano, nitro, methyl and/or trifluoromethyl];
or wherein, furthermore,

R⁵ represents a five- or six-membered heteroaromatic ring which contains 1 to 3 nitrogen atoms and/or an oxygen or sulphur atom and which is
15 optionally benzo-fused and/or substituted by fluorine, chlorine, bromine, cyano, nitro, C₁-C₃-alkyl or C₁-C₃-alkoxy [the latter being optionally substituted by fluorine and/or chlorine];

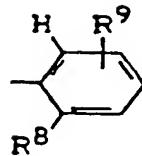
20 and wherein, furthermore,

X represents oxygen or sulphur and

M represents hydrogen or one equivalent of sodium, potassium, magnesium, calcium, aluminium, manganese, iron, cobalt or nickel.

8. Herbicidal sulphonyliso (thio) urea derivatives as claimed in claim 3 in which

R³ represents the radical



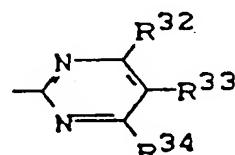
wherein

R⁸ represents fluorine, chlorine, bromine, methyl, trifluoromethyl, methoxy, difluoromethoxy, trifluoromethoxy, C₁-C₃-alkylthio, difluoromethylthio, trifluoromethylthio, C₁-C₃-alkylsulphanyl, C₁-C₃-alkylsulphonyl, dimethylaminosulphonyl, diethylaminosulphonyl, N-methoxy-N-methylamino-sulphonyl, phenyl, phenoxy, C₁-C₃-alkoxy-carbonyl or C₁-C₃-alkyl-aminocarbonyl and

R⁹ represents hydrogen;

and wherein, furthermore,

R⁴ represents the radical



15 wherein

R³² represents hydrogen, fluorine, chlorine, bromine, hydroxyl, C₁-C₃-alkyl, C₁-C₃-alkoxy or difluoromethoxy,

R³³ represents hydrogen, chlorine, bromine or methyl and

R³⁴ represents C₁-C₃-alkyl, hydroxy, fluorine, chlorine, bromine or C₁-C₃-alkoxy;

and wherein, furthermore,

R⁵ represents C₁-C₈-alkyl [which is optionally substituted by fluorine, chlorine, cyano, C₁-C₂-alkoxy or C₁-C₂-alkoxy-carbonyl], or represents C₃-C₄-alkenyl, C₃-C₄-alkinyl or benzyl [which is optionally substituted in the phenyl part by fluorine, chlorine, nitro, cyano, methyl, methoxy or C₁-C₂-alkoxycarbonyl], or

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5 R⁵ represents a phenyl radical, which is optionally substituted by one or two radicals from the series comprising fluorine, chlorine, bromine, iodine, cyano, nitro, hydroxyl, carboxyl, C₁-C₃-alkoxy-carbonyl, C₁-C₄-alkyl, trifluoromethyl, hydroxymethyl, methoxycarbonylmethyl, phenyl-C₁-C₃-alkyl, cyclohexyl, C₁-C₃-alkoxy, trifluoromethoxy, C₁-C₃-alkylthio, trifluoromethylthio, dimethylamino, amino, acetylarnino, methylamino-carbonyl, formyl, acetyl, benzoyl, phenyl, hydroxyphenyl, phenoxy [which is optionally substituted by chlorine and/or trifluoromethyl], phenylamino, phenylazo and pyridoxy [which is optionally substituted by chlorine and/or trifluoromethyl], or which is optionally benzo-fused;

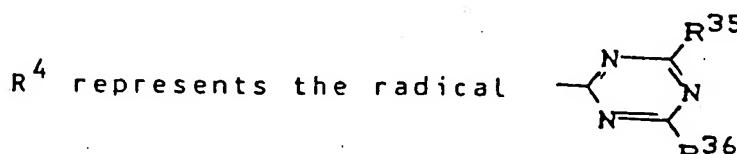
10 and wherein, furthermore,

15 X represents oxygen or sulphur and

M represents hydrogen or one equivalent of sodium, potassium or calcium;

20 or wherein, furthermore,

(B) R³, R⁵, X and M have the meaning given above under (A) and



wherein

25 R³⁵ represents fluorine, chlorine, cyclopropyl, C₁-C₂-alkyl, C₁-C₂-alkoxy or C₁-C₂-alkylthio and

R³⁶ represents fluorine, chlorine, cyclopropyl, C₁-C₂-alkyl, C₁-C₂-alkoxy, C₁-C₂-alkyl-amino or di-(C₁-C₂-alkyl)-amino.

9. Any new compound substantially as herein described and exemplified in any one of the examples in table 2.

10. Method of selectively combating weeds in crops of useful plants, characterized in that an active compound combination according to any one of Claims 3 to 9 is allowed to act on the weeds or their environment.

11. Use of an active compound combination according to any one of Claims 3 to 9 for selectively combating weeds in crops of useful plants.

12. Process for the preparation of agents for selectively combating weeds in crops of useful plants, characterized in that active compound combinations according to any one of Claims 3 to 9 are mixed with extenders and/or surface-active agents.



JOHN & KERNICK
for the Applicants

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